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DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY

O. H. TITTMANN, SUPERINTENDENT

RESULTS OF OBSERVATIONS MADE AT THE COAST AND  
GEODETIC SURVEY MAGNETIC OBSERVATORY  
AT VIEQUES, PORTO RICO  
1909 AND 1910

BY

DANIEL L. HAZARD  
Computer, Division of Terrestrial Magnetism



WASHINGTON  
GOVERNMENT PRINTING OFFICE

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## RESULTS OF OBSERVATIONS MADE AT THE COAST AND GEODETIC SURVEY MAGNETIC OBSERVATORY AT VIEQUES, PORTO RICO, 1909 AND 1910.

### INTRODUCTION.

Latitude,  $18^{\circ} 08'.8$  N. Longitude,  $65^{\circ} 26'.9$  W. Elevation, 20 meters (65 feet).

In February, 1903, a magnetograph was installed in a room in Fort Isabel Segunda, on Vieques Island, Porto Rico, and variation observations were continued there until April, 1907. At that time suitable buildings had been constructed for the observatory work, and the magnetograph was transferred to the new site, about five-eighths of a mile west of the old fort. A general description of the new buildings will be found in "Results of Observations made at the Coast and Geodetic Survey Magnetic Observatory at Vieques, Porto Rico, 1907-8."

The direct supervision of the magnetic work of the Coast and Geodetic Survey is assigned to an assistant to the Superintendent, designated "Inspector of Magnetic Work." This position has been held by R. L. Faris since September 1, 1906. The work of the Porto Rico Observatory was carried on during 1909 and 1910 by George Hartnell, magnetic observer.

### INSTRUMENTS.

#### VARIATION INSTRUMENTS.

The magnetograph is of the Eschenhagen pattern and consists of *D*, *H*, and *Z* variometers and a recording apparatus. The variometers are mounted east of the recording apparatus. Increasing ordinates (upward motion of the curves) correspond to increasing west declination, increasing *H*, and increasing *Z*.

The variations in temperature were obtained from the record of the thermograph inclosed in the *Z* variometer. The daily variation of temperature seldom exceeds a few tenths of a degree centigrade, and the seasonal variation is correspondingly small.

*Monthly and annual range of temperature (centigrade).*

Month	1909			1910		
	Maximum	Minimum	Range	Maximum	Minimum	Range
January.....	29.8	27.2	2.6	28.8	25.6	3.2
February.....	29.5	27.1	2.4	28.5	25.5	3.0
March.....	29.8	28.3	1.5	29.2	26.8	2.4
April.....	29.8	28.1	1.7	29.5	27.1	2.4
May.....	31.1	27.8	3.3	29.9	27.3	2.6
June.....	30.8	28.4	2.4	30.5	28.1	2.4
July.....	30.9	29.1	1.8	30.3	28.6	1.7
August.....	30.8	29.1	1.7	30.3	28.9	1.4
September.....	30.9	29.3	1.6	30.1	27.9	2.2
October.....	30.8	28.4	2.4	29.9	28.3	1.6
November.....	30.2	27.6	2.6	30.0	28.2	1.8
December.....	29.5	26.8	2.7	29.3	26.9	2.4
Year.....	31.1	26.8	4.3	30.5	25.5	5.0

## ABSOLUTE INSTRUMENTS.

India Magnetic Survey pattern magnetometer No. 31, Schulze earth inductor No. 1.

## SEISMOGRAPH.

A Bosch-Omori seismograph was kept in continuous operation. The recorded seismic disturbances will be found tabulated on pages 92-93.

## TIME.

Time observations were made about once a week with magnetometer No. 31, which is provided with a vertical circle, using the method of equal altitudes of the sun.

## CONSTANTS OF THE MAGNETOGRAPH.

## DECLINATION.

The changes of recording apparatus on December 7, 1909, and September 30, 1910, produced slight changes in the declination scale value.

Jan. 1 to Dec. 7, 1909.....	1 mm.= 1'.01
Dec. 7, 1909, to Sept. 30, 1910.....	1 mm.= 1'.05
Oct. 1 to Dec. 31, 1910.....	1 mm.= 1'.01

## HORIZONTAL INTENSITY.

*Scale value.*—Deflection observations for the determination of the scale value of the *H* variometer were made twice a month. The results from January to September, 1910, show a relation between change of scale value and change of ordinate represented by the formula:

$$\epsilon_h = 2.8367 + 0.0059h$$

During 1909 the changes of adjustment were too frequent to trace such a relation.

*H Scale value.*

Date	Observed	Adopted	Date	<i>h</i>	Observed	Computed	Adopted
1909.	<i>r</i>	<i>r</i>	1910.	<i>mm</i>	<i>r</i>	<i>r</i>	<i>r</i>
Jan. 18	9.64?	7.00	Jan. 17	27.5	3.00	3.00	3.01
20	2.43	2.43	31	28.2	3.00	3.00	3.01
Feb. 9	2.38	2.35	Feb. 14	28.4	3.00	3.00	2.98
23	2.31	2.35	28	8.5	2.87	2.89	2.95
Mar. 31	3.04	3.05	Mar. 14	12.0	2.89	2.91	2.90
Apr. 15	3.06	3.05	31	- 7.8	2.77	2.79	2.85
May 19	2.95	2.97	Apr. 11	3.6	2.85	2.86	2.83
31	2.98	2.97	30	- 7.4	2.79	2.79	2.80
June 14	3.04	3.03	May 13	-25.0	2.72	2.69	2.77
30	3.02	3.03	31	-23.8	2.70	2.70	2.72
July 12	3.04	3.02	June 13	32.4	3.04	3.03	3.04
31	3.00	3.02	30	22.7	2.97	2.97	2.99
Aug. 16	3.00	2.97	July 15	21.4	3.04	2.96	2.96
31	2.89	2.92	29	10.2	2.92	2.90	2.92
Sept. 28	3.05	3.05	Aug. 16	3.6	2.86	2.86	2.87
Oct. 12	3.39	3.21	31	- 8.0	2.78	2.79	2.82
31	3.27	3.21	Sept. 12	- 4.6	2.75	2.81	2.78
Nov. 17	3.15	3.20	29	-35.4	2.63	2.63	2.72
29	3.20	3.19	Oct. 14	26.1	2.84	2.87	2.87
Dec. 21	3.16	3.15	31	24.8	2.87	2.87	2.87
31	3.12	3.14	Nov. 14	25.1	2.86	2.87	2.85
			Dec. 27	16.3	2.82	2.82	2.79

*Temperature coefficient.*—The same values were used as in previous years.

$$q=0.00026 \text{ or } 7.57 \text{ for } 1^\circ \text{ C.}$$

## VERTICAL INTENSITY.

*Scale value.*—Deflection observations for the determination of the scale value of the Z variometer were made once a month. There appears to be no relation between change of scale value and change of ordinate.

## Z Scale value.

Date	Observed	Adopted	Date	Observed	Adopted
1909.	<i>r</i>	<i>r</i>	1910.	<i>r</i>	<i>r</i>
Jan. 18	4.85	5.00	Jan. 31	5.73	5.72
Feb. 9	5.18	5.00	Feb. 28	5.69	5.73
23	4.65?	5.00	Mar. 31	5.86	5.73
Mar. 31	5.09	5.32	Apr. 30	5.86	5.73
May 31	5.31	5.32	May 31	5.59	5.73
June 30	5.60	5.32	June 30	5.71	5.73
July 31	5.42	5.32	July 29	5.81	5.73
Sept. 30	2.54?	3.26	Aug. 31	5.84	5.73
Oct. 12	2.16?	3.26	Sept. 29	5.70	5.73
31	3.26	3.26	Oct. 31	5.79	5.73
Nov. 29	5.37	5.32	Dec. 31	5.46	5.73
Dec. 31	5.46	5.52			

*Temperature coefficient*—The same value was used as in 1907 and 1908, namely:

$$q=0.00009, \text{ or } 3.0r \text{ for } 1^\circ \text{ C.}$$

## ABSOLUTE OBSERVATIONS AND BASE-LINE VALUES.

## DECLINATION.

Absolute observations of declination were made twice a week, each day's observations consisting of one set in the morning and one in the afternoon. Abrupt changes of base-line value occurred on December 7, 1909, and September 30, 1910, when the recording apparatus was changed, and on October 14, 1910, at the time of scale value deflections. There was a gradual increase throughout the two years amounting to a few tenths of a minute per month

## Declination base-line values.

Date	Observed	Adopted	Date	Observed	Adopted	Date	Observed	Adopted
1909.	° /	° /	1909.	° /	° /	1910.	° /	° /
Jan. 4	1 55.4 W.	1 55.2 W.	Sept. 17	1 56.9 W.	1 57.3 W.	May 6	2 05.0 W.	2 04.9 W.
8	55.1	55.1	20	57.2	57.3	9	04.6	04.9
11	54.9	55.1	24	57.2	57.4	13	04.7	04.9
15	55.0	55.0	27	57.8	57.4	16	04.9	04.9
18	54.9	55.0	Oct. 1	58.0	57.5	20	05.0	04.9
22	55.6	55.0	4	57.6	57.5	23	05.0	04.9
25	55.0	54.9	8	57.8	57.6	27	04.8	04.9
29	55.2	54.9	11	57.6	57.7	30	04.9	04.9
Feb. 5	55.0	54.8	15	57.8	57.7	June 3	05.1	05.0
8	55.1	54.8	18	57.5	57.8	6	05.1	05.0
12	54.5	54.7	22	58.5	57.8	10	05.0	05.1
15	54.6	54.7	26	58.2	57.9	13	05.3	05.1
19	54.6	54.7	29	58.2	58.0	17	04.9	05.2
22	54.5	54.7	Nov. 1	58.7	58.0	20	05.2	05.2
26	54.7	54.7	5	57.4	58.1	24	05.5	05.3
Mar. 1	54.5	54.8	8	58.2	58.1	27	05.1	05.3
5	55.4	54.8	12	58.2	58.2	July 1	05.1	05.4
8	54.8	54.8	15	58.1	58.2	5	05.7	05.4
12	54.8	54.9	19	58.5	58.3	8	05.4	05.5
15	54.8	54.9	22	58.7	58.4	11	05.6	05.5
19	55.2	54.9	26	58.4	58.4	15	05.7	05.6
22	55.0	55.0	29	58.7	58.5	18	05.6	05.6
26	55.0	55.0	Dec. 3	58.8	58.5	22	05.7	05.7
29	54.7	55.0	6	1 59.2	1 58.6	25	05.6	05.7
Apr. 2	54.2	55.1	10	2 03.4	2 03.3	28	05.9	05.8
5	55.0	55.1	13	03.3	03.4	Aug. 5	05.8	05.9
9	54.8	55.1	17	03.5	03.5	8	05.8	06.0
12	55.0	55.2	20	03.3	03.6	12	06.3	06.0
16	55.1	55.2	24	04.0	03.7	15	06.4	06.1
19	55.6	55.2	27	03.8	03.8	19	06.4	06.2
23	55.3	55.2	31	03.8	04.0	22	06.3	06.2
May 7	55.2	55.2	1910.			26	06.2	06.3
10	55.0	55.2	Jan. 3	04.1	04.1	Sept. 2	06.3	06.4
14	56.3	55.2	7	04.3	04.1	5	06.5	06.4
17	55.6	55.2	10	04.2	04.1	9	06.3	06.5
21	55.4	55.3	14	04.1	04.1	12	06.7	06.6
24	55.1	55.3	17	04.4	04.1	16	06.6	06.6
28	55.3	55.4	21	04.3	04.1	19	06.7	06.7
31	55.3	55.4	24	04.3	04.1	26	06.6	06.8
June 4	55.5	55.5	28	04.5	04.1	30	06.9	06.8
7	55.7	55.6	31	04.1	04.1	Oct. 3	07.7	07.7
11	55.6	55.6	Feb. 4	04.2	04.2	7	07.8	07.7
14	56.0	55.7	7	03.9	04.2	10	07.6	07.7
18	55.5	55.7	11	04.2	04.2	14	07.8	07.7
21	56.1	55.8	14	04.0	04.2	17	06.6	06.6
25	55.9	55.9	18	04.1	04.2	21	06.9	06.7
28	55.8	55.9	21	04.2	04.2	24	06.8	06.7
July 2	55.6	56.0	25	03.5	04.2	28	06.5	06.8
5	56.0	56.0	28	04.2	04.2	Nov. 4	07.0	06.9
9	55.9	56.1	Mar. 4	04.3	04.3	7	07.0	06.9
12	56.2	56.1	7	04.3	04.3	11	06.9	07.0
16	55.9	56.2	11	04.4	04.4	14	07.1	07.0
19	56.2	56.3	14	04.4	04.4	18	07.2	07.1
23	56.1	56.3	18	04.3	04.5	21	07.1	07.1
26	55.8	56.4	21	04.4	04.5	25	07.1	07.2
30	55.9	56.4	25	04.5	04.6	28	07.3	07.2
Aug. 2	56.3	56.5	28	04.7	04.6	Dec. 2	07.3	07.3
6	56.5	56.6	Apr. 1	05.1	04.7	5	07.4	07.3
9	56.3	56.6	4	04.5	04.7	9	07.3	07.4
13	56.4	56.7	8	04.6	04.7	12	07.3	07.4
16	56.3	56.7	11	04.3	04.8	16	07.9	07.5
20	56.4	56.8	15	04.8	04.8	19	07.1	07.5
23	56.7	56.8	18	05.1	04.9	23	07.5	07.6
27	56.7	56.9	22	04.9	04.9	26	07.7	07.6
Sept. 6	56.9	57.0	25	05.1	04.9	30	07.8	07.7
10	57.3	57.1	29	05.1	04.9			
13	57.0	57.2	May 2	05.0	04.9			

## HORIZONTAL INTENSITY.

Absolute observations of horizontal intensity were made twice a week, a day's observations consisting of one set of deflections at two distances between two sets of oscillations.

As a result of comparisons at Cheltenham in 1903 and at the Porto Rico observatory in 1905,  $+.00095 H$  was adopted as the correction to be applied to results with magnetometer No. 31 to reduce them to the Cheltenham standard. From indirect comparisons in 1910 by means of two Carnegie Institution magnetometers and in 1911 by means of Coast and Geodetic Survey magnetometer No. 36, the conclusion was reached that the correction to magnetometer No. 31 in March, 1911, was  $-.0005 H$ . A careful scrutiny of the absolute observations and base-line values from 1905 to 1911 failed to find any evidence of a *sudden* change in the magnetometer which might account for this change in its relation to the standard magnetometer, and it was therefore considered best to assume a gradual change from  $+.00095 H$  ( $+28 \gamma$ ) in January, 1907, to  $-.0005 H$  ( $-15 \gamma$ ) in March, 1911.

Throughout the two years there was a downward drift of the  $H$  curve corresponding to an increase of base-line value of one or two gammas which necessitated occasionally readjustments of the variometer. The results up to January 19, 1909, are doubtful, as the magnet was apparently not entirely free.

Abrupt changes of  $H$  base-line value.

Date	Hour	Amount	Cause	Date	Hour	Amount	Cause
1909.				1909.			
Jan. 19	12-17	$\gamma$	Changed control magnets.	Oct. 1	0- 1	$\gamma$	Adjusted by torsion.
20	8- 9	....	Adjusted.	Dec. 31	20-21	- 40	Do.
Mar. 1	0- 1	-134	Adjusted by torsion.				
May 6	19-20	-112	Do.	1910			
June 1	0- 1	- 70	Do.	May 31	21-22	-176	Do.
July 1	0- 1	- 61	Do.	Sept. 30	21-22	-162	Do.
Sept. 1	0- 1	-117	Do.				

*H* base-line values at 20° C.

Date	Observed	Adopted	Date	Observed	Adopted	Date	Observed	Adopted
1909.			1909.			1910.		
Jan. 4	28811	28807	Sept. 17	28774	28775	May 13	28846	28842
8	818	814	20	779	780	16	848	845
11	807	817	24	785	787	20	851	846
15	819	821	27	800	792	23	846	847
18	819	824	Oct. 1	664	676	27	845	848
22	873	873	4	693	678	30	845	848
25	876	878	8	676	682	June 3	675	685
29	849	885	11	695	684	6	701	688
Feb. 1	894	890	15	687	688	10	697	692
5	888	897	18	686	690	13	695	695
8	907	902	22	680	694	17	699	700
12	910	909	26	698	697	20	708	703
15	927	914	29	703	700	24	704	707
19	919	921	Nov. 1	694	702	27	716	710
22	924	926	5	715	706	July 1	713	715
26	928	933	8	711	708	5	719	719
Mar. 1	800	803	12	712	712	8	722	722
5	814	809	15	710	714	11	719	725
8	812	813	19	718	718	15	723	730
12	818	818	22	723	720	18	731	733
15	822	823	26	732	724	22	738	737
19	830	828	29	725	726	25	732	740
22	827	832	Dec. 3	724	730	25	737	740
26	838	838	6	727	733	28	738	744
29	839	842	10	744	741	28	740	744
Apr. 2	844	848	13	744	744	Aug. 5	753	752
5	857	852	17	744	748	8	759	755
9	855	858	20	753	751	12	759	760
12	860	862	24	758	755	15	758	763
16	869	867	27	765	758	19	771	767
19	878	872	31	760	762	19	764	767
23	879	877				22	779	770
May 7	838	834	1910.			26	774	775
10	842	838	Jan. 3	720	727	29	774	778
14	835	842	7	733	733	Sept. 2	786	782
17	844	846	10	738	736	5	794	785
21	854	850	14	738	740	9	788	790
24	852	854	17	745	743	12	795	793
28	859	858	21	744	746	16	797	797
31	866	862	24	753	749	19	804	800
June 4	803	798	28	758	752	23	793	805
7	801	802	31	759	754	26	808	808
11	810	808	Feb. 4	757	758	30	812	812
14	812	813	7	761	761	Oct. 3	654	653
18	820	819	11	769	764	7	650	657
21	812	823	14	769	767	10	658	659
25	832	829	18	770	770	14	662	663
28	838	834	21	757	773	17	667	665
July 2	778	778	25	773	776	21	668	669
5	785	783	28	783	779	24	670	671
9	786	788	Mar. 4	784	782	28	678	674
12	793	792	7	788	785	31	678	677
16	801	798	11	786	788	Nov. 4	683	680
19	807	802	14	792	791	7	686	683
23	802	808	18	794	794	11	683	686
26	807	812	21	794	797	14	695	689
30	821	818	25	797	800	18	693	692
Aug. 2	835	822	28	798	803	21	697	694
6	824	827	Apr. 1	797	806	25	700	698
9	835	832	4	815	809	28	698	700
13	833	837	8	813	812	Dec. 2	701	703
16	841	841	11	809	815	5	715	706
20	847	847	15	816	818	9	707	709
23	852	851	18	829	821	12	710	712
27	860	857	22	830	824	16	722	715
30	857	861	25	830	827	19	712	718
Sept. 6	756	756	29	834	830	23	716	721
10	761	763	May 2	828	833	26	726	724
13	767	768	6	837	836	30	722	727
			9	835	839			

## VERTICAL INTENSITY.

Absolute observations of dip were made twice a week with earth inductor No. 1, which requires a correction of  $-1'.0$  to reduce to the standard earth inductor at Cheltenham. The Z variometer performed its functions well, and comparatively few changes of adjustment were required. There was a gradual decrease of base-line value for the greater part of the two years, amounting to  $3\gamma$  or  $4\gamma$  a week on the average.

*Abrupt changes of Z base-line value.*

Date	Hour	Amount	Cause
1909.			
Jan. 2	18-19	- 92	Adjusted.
20	10-11	+ 30	Disturbed during deflections.
Feb. 23	10-11	- 75	Do.
Mar. 1	0- 1	+ 80	Adjusted.
May 31	19-20	- 10	Disturbed during deflections.
Aug. 31	19-20	+148	Adjusted.
Sept. 30	18-19	+ 48	Disturbed during deflections.
Nov. 1	0- 1	+ 27	Adjusted.
29	11-12	+ 51	Disturbed during deflections.
30	21-22	- 60	Adjusted.
Dec. 7	8-17	- 51	Do.
1910.			
Jan. 31	22-23	+ 90	Do.
June 30	20-21	+ 50	Do.
Sept. 30	21-22	+130	Do.
Nov. 30	19-20	- 10	Cause unknown.

## PORTO RICO MAGNETIC OBSERVATORY.

*Z base-line values at 20° C.*

Date	Observed	Adopted	Date	Observed	Adopted	Date	Observed	Adopted
1909.			1909.			1910.		
Jan. 4	34078	34076	Sept. 13	34130	34133	May 6	34102	34101
8	073	080	17	127	131	9	100	099
11	084	078	20	132	130	13	100	096
15	069	074	24	133	128	16	096	095
18	062	071	27	129	126	20	083	092
22	097	098	1	171	172	23	092	090
25	100	097	4	149	168	27	088	088
29	103	095	8	166	163	30	090	086
Feb. 1	091	093	11	153	159	June 3	082	084
5	088	091	15	158	153	6	072	082
8	085	090	18	160	149	10	074	079
12	089	088	22	146	144	13	083	077
15	088	087	26	139	139	17	066	074
19	086	086	29	130	135	20	078	072
22	092	085	Nov. 1	160	158	24	080	069
26	016	010	5	155	157	27	065	067
Mar. 1	090	090	8	156	156	July 1	114	115
5	093	090	12	153	154	5	113	115
8	093	090	15	169	153	8	112	114
12	083	090	19	155	151	11	115	113
15	092	090	22	149	150	15	117	112
19	096	090	26	147	148	18	119	110
22	092	090	29	204	198	22	107	108
26	081	089	Dec. 3	131	136	25	106	107
29	090	088	6	136	133	Aug. 5	099	101
Apr. 2	093	087	10	081	078	8	099	100
5	083	086	13	068	075	12	097	098
9	084	085	17	075	071	15	099	096
12	079	084	20	068	068	19	(136)	094
16	079	082	24	058	066	22	089	093
19	082	081	27	057	064	26	091	091
23	077	080	31	060	061	29	088	089
May 7	061	070	1910.			Sept. 2	085	087
10	076	073	Jan. 3	065	059	5	086	085
14	081	071	7	065	057	9	080	083
17	064	070	10	046	056	12	073	082
21	063	068	14	055	054	16	079	080
24	070	066	17	044	052	19	083	079
28	066	064	21	058	050	23	082	078
31	061	063	24	041	048	26	081	077
June 4	046	051	28	046	045	30	067	076
7	045	049	31	040	043	Oct. 3	214	206
11	054	047	Feb. 4	136	133	7	202	204
14	045	046	7	130	132	10	205	203
18	050	044	11	131	132	14	196	202
21	042	042	14	132	131	17	198	201
25	038	040	18	134	131	21	193	200
28	039	039	21	133	130	24	207	199
July 2	037	037	28	131	129	28	189	198
5	024	035	Mar. 4	127	128	31	198	197
9	030	032	7	127	127	Nov. 4	195	196
12	037	030	11	125	125	7	192	195
16	026	027	14	126	124	11	203	194
19	029	025	18	122	123	14	199	193
23	030	023	21	116	122	18	185	192
26	023	021	25	120	121	21	187	191
30	028	018	28	119	120	25	198	191
Aug. 2	019	016	Apr. 1	122	118	28	194	190
6	013	014	4	124	117	2	172	178
9	006	012	8	119	116	5	178	177
13	007	009	11	111	115	9	176	175
16	013	007	15	107	113	12	172	173
20	007	004	18	118	112	16	170	171
23	34005	002	25	110	108	19	170	170
27	33991	34000	22	107	110	23	151	168
30	33999	33998	25	109	105	26	162	166
Sept. 6	34122	34139	29	109	105	30	166	164
10	147	135	May 2	104	104			

## DIURNAL VARIATION.

The following tables present the diurnal variation of  $D$ ,  $H$ ,  $Z$ ,  $I$ ,  $X$ , and  $Y$  for each month, based on the hourly means for the 10 least disturbed days. The hours are local mean time counted from midnight. The variations in  $I$ ,  $X$ , and  $Y$  were computed from the variations in  $D$ ,  $H$ , and  $Z$  by means of the formulas:

$$\begin{aligned} \Delta X &= +0.999\Delta H + 0.333\Delta D \\ \Delta Y &= -0.040\Delta H + 8.403\Delta D \\ \Delta I &= +0.050\Delta Z - 0.059\Delta H \end{aligned}$$

A plus sign indicates an hourly value greater than the mean for the day.

Mean results are also given for groups of four months, as indicated by the Roman numerals at the head of the columns: I—January, February, November, December; II—March, April, September, October; III—May, June, July, August.

## Diurnal variation of declination.

1909.

Hour	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Group means		
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III
1	,	,	,	,	,	,	,	,	,	,	,	,	,	,	,
2	-0.4	-0.1	-0.1	-0.1	+0.2	-0.1	-0.3	-0.1	0.0	-0.1	-0.3	-0.3	-0.3	-0.1	-0.1
3	-0.5	0.0	0.0	0.0	+0.2	-0.1	-0.2	-0.1	0.0	-0.1	-0.4	-0.3	-0.3	0.0	0.0
4	-0.4	-0.1	-0.1	0.0	+0.4	0.0	-0.1	0.0	+0.3	+0.1	-0.1	-0.2	-0.2	+0.1	-0.1
5	-0.4	+0.1	-0.1	+0.2	+0.5	+0.1	+0.1	+0.1	+0.3	+0.5	+0.4	0.0	-0.2	-0.1	+0.2
6	-0.4	+0.2	0.0	+0.4	+0.6	+0.4	+0.4	+0.4	+0.7	+0.6	+0.5	+0.2	-0.2	0.0	+0.4
7	-0.2	+0.4	+0.5	+0.6	+1.4	+1.2	+1.3	+2.1	+1.3	+0.7	+0.3	-0.1	+0.1	+0.8	+1.5
8	-0.1	+0.2	+0.9	+1.8	+2.5	+2.2	+2.7	+3.9	+2.4	+1.2	+0.8	-0.2	+0.2	+1.6	+2.8
9	+1.1	+0.8	+1.3	+2.6	+2.4	+2.6	+3.0	+3.6	+2.7	+1.9	+1.8	+0.6	+1.1	+2.1	+2.9
10	+2.9	+1.0	+1.6	+2.9	+1.8	+2.3	+2.2	+1.8	+2.1	+2.3	+2.2	+1.6	+1.9	+2.2	+2.0
11	+3.7	+0.7	+1.8	+2.6	+0.7	+1.5	+1.5	+1.5	+0.6	+1.0	+1.7	+1.8	+2.2	+1.8	+1.1
12	+3.0	-0.3	+1.3	+1.6	-0.3	+0.7	+0.5	+1.0	-0.5	+0.2	+0.6	+1.6	+1.2	+0.6	0.0
13	+0.9	-0.7	+0.7	+0.2	-0.8	-0.5	-0.1	-1.6	-1.6	-0.9	-0.4	+0.4	0.0	-0.4	-0.8
14	-1.0	-0.7	-0.2	-1.5	-1.5	-1.2	-1.0	-2.1	-2.3	-1.4	-1.1	-0.8	-0.9	-1.3	-1.4
15	-2.0	-0.4	-1.2	-2.7	-1.9	-1.7	-1.7	-2.2	-2.2	-1.7	-1.4	-1.6	-1.4	-1.9	-1.9
16	-2.0	-0.2	-1.6	-2.9	-1.9	-1.7	-1.8	-1.9	-1.6	-1.7	-1.5	-1.8	-1.4	-2.0	-1.8
17	-1.6	-0.1	-1.4	-2.3	-1.4	-1.3	-1.4	-1.2	-1.0	-1.2	-1.2	-1.3	-1.0	-1.5	-1.3
18	-1.0	-0.4	-1.2	-1.4	-0.8	-0.9	-1.0	-0.6	-0.5	-0.7	-1.0	-0.6	-0.8	-0.9	-0.8
19	-0.6	-0.3	-0.7	-0.6	-0.7	-0.8	-0.8	-0.4	-0.5	-0.5	-0.5	-0.5	-0.4	-0.6	-0.7
20	-0.2	-0.1	-0.4	-0.5	-0.5	-0.6	-0.9	-0.3	-0.2	-0.3	-0.3	-0.3	-0.1	-0.4	-0.6
21	0.0	+0.1	-0.2	-0.4	-0.2	-0.5	-0.7	-0.4	-0.1	0.0	0.0	+0.1	+0.4	+0.2	-0.2
22	0.0	+0.1	-0.2	-0.2	-0.1	-0.4	-0.4	-0.2	0.0	0.0	0.0	+0.2	+0.3	+0.2	-0.4
23	-0.2	0.0	-0.1	0.0	0.0	-0.3	-0.3	-0.1	-0.1	-0.1	+0.1	0.0	0.0	-0.1	-0.2
24	-0.3	0.0	0.0	-0.1	0.0	-0.2	-0.2	-0.3	-0.1	-0.2	0.0	-0.2	-0.1	-0.1	-0.2

1910.

1	-0.2	-0.3	-0.4	-0.2	+0.2	-0.2	+0.1	-0.2	0.0	-0.2	-0.3	-0.3	-0.3	-0.2	0.0
2	-0.4	-0.3	-0.3	+0.1	+0.3	+0.1	+0.1	-0.1	0.0	-0.3	-0.2	-0.5	-0.4	-0.1	+0.1
3	-0.3	-0.4	-0.2	+0.1	+0.5	+0.3	+0.1	-0.2	+0.2	-0.1	-0.3	-0.4	-0.4	0.0	+0.2
4	-0.4	-0.2	-0.1	+0.2	+0.8	+0.4	+0.3	+0.2	+0.5	0.0	-0.2	-0.5	-0.3	+0.2	+0.4
5	-0.3	-0.1	+0.4	+0.4	+1.2	+0.7	+0.6	+0.6	+0.9	+0.1	0.0	-0.3	-0.2	+0.4	+0.8
6	-0.2	0.0	+0.6	+0.9	+1.9	+1.9	+1.3	+1.1	+1.9	+0.5	+0.1	-0.1	0.0	+1.0	+1.6
7	-0.3	+0.1	+0.9	+1.8	+2.5	+3.0	+2.6	+2.8	+3.7	+1.2	+0.5	-0.2	0.0	+1.9	+2.7
8	+0.7	+1.4	+1.4	+2.2	+2.4	+2.9	+3.3	+3.6	+3.6	+2.2	+1.3	+1.0	+1.1	+2.4	-2.9
9	+2.2	+2.7	+2.0	+2.2	+1.2	+1.9	+2.5	+2.4	+2.3	+2.4	+1.7	+2.2	+2.2	+2.2	+2.0
10	+3.0	+2.8	+1.8	+1.8	0.0	+0.8	+1.4	+1.1	+0.6	+1.7	+1.5	+2.6	+2.5	+1.5	+0.8
11	+2.7	+1.3	+1.4	+0.9	-0.9	-0.2	+0.3	-0.1	-1.2	+0.3	+0.6	+1.6	+1.6	+0.4	-0.2
12	+0.8	-0.6	+0.5	-0.4	-1.5	-1.1	-1.0	-1.0	-2.5	-0.4	-0.4	-0.1	-0.1	-0.7	-1.2
13	-1.0	-1.7	-0.6	-2.0	-2.0	-1.8	-1.9	-1.7	-3.4	-0.8	-0.8	-1.5	-1.2	-1.7	-1.8
14	-1.8	-1.8	-1.2	-2.6	-2.1	-1.7	-2.5	-2.2	-3.0	-1.2	-1.0	-2.0	-1.6	-2.0	-2.1
15	-1.9	-1.4	-1.3	-2.3	-2.0	-1.5	-2.2	-1.9	-1.8	-1.2	-1.0	-1.6	-1.5	-1.6	-1.9
16	-1.4	-0.7	-0.9	-1.4	-1.2	-0.8	-1.5	-1.3	-0.7	-1.3	-0.8	-1.1	-1.0	-1.1	-1.2
17	-0.8	-0.4	-0.7	-0.7	-0.4	-0.6	-0.5	-0.8	-0.7	-0.1	-1.1	-0.5	-0.5	-0.6	-0.6
18	-0.5	-0.4	-0.7	-0.1	-0.3	-0.7	-0.7	-0.6	-0.2	-0.8	-0.4	+0.1	-0.3	-0.4	-0.6
19	-0.2	-0.1	-0.6	-0.2	-0.2	-0.8	-0.6	-0.5	-0.2	-0.5	-0.1	+0.2	0.0	-0.4	-0.5
20	-0.1	+0.1	-0.5	-0.2	-0.2	-0.8	-0.6	-0.4	-0.1	-0.2	+0.2	+0.4	+0.2	-0.2	-0.5
21	0.0	+0.3	-0.5	-0.2	-0.1	-0.7	-0.5	-0.2	-0.1	0.0	+0.3	+0.5	+0.3	-0.2	-0.4
22	+0.1	+0.2	-0.5	-0.1	0.0	-0.5	-0.3	0.0	0.0	-0.1	+0.2	+0.3	+0.2	-0.2	-0.2
23	0.0	-0.1	-0.4	-0.2	0.0	-0.4	-0.2	0.0	0.0	-0.1	+0.0	+0.2	0.0	-0.2	-0.2
24	0.0	-0.2	-0.4	-0.2	+0.1	-0.2	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	-0.1	-0.2	-0.1

## Diurnal variation of horizontal intensity

1909.

Hour	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Group means		
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III
1	r 0	r 8	r 10	r 4	r 5	r 6	r 7	r 3	r 3	r 5	r 0	r 3	r 5	r 5	r 5
2	0	-7	-8	-5	-4	-6	-6	-2	-2	-4	-3	-3	-5	-5	-5
3	0	-6	-4	-5	-3	-4	-7	-1	-2	-4	-4	-2	-4	-4	-4
4	+1	-4	-3	-5	-2	-3	-6	-1	-1	-2	-1	-1	-3	-3	-3
5	+2	-2	-1	-4	-2	-2	-6	-2	-0	-2	-0	+1	-2	-2	-3
6	+3	-3	-1	-4	-1	0	-5	-2	+1	+1	+2	+5	+2	-1	-2
7	+5	+4	+4	-3	+1	-1	-3	-2	+1	+5	+7	+10	+6	+2	-1
8	+7	+11	+9	-2	+3	-1	0	+1	+2	+8	+9	+12	+10	+4	+1
9	+4	+16	+12	0	+8	0	+6	+7	+6	+11	+12	+10	+10	+7	+5
10	+3	+16	+12	+7	+12	+4	+12	+10	+9	+10	+13	+7	+10	+10	+9
11	0	+13	+13	+11	+13	+8	+14	+11	+9	+10	+10	+2	+6	+11	+12
12	-5	+12	+14	+10	+11	+9	+14	+10	+8	+10	+7	0	+4	+10	+11
13	-9	+7	+11	+10	+6	+10	+13	+7	+7	+7	0	-5	-2	+9	+9
14	-8	+4	+5	+8	+2	+8	+9	+3	+4	+3	-4	-8	-4	+5	+6
15	-5	0	-1	+5	-3	+5	+3	0	-1	0	-7	-8	-5	+1	+1
16	-4	-3	-3	0	-5	+1	-1	-5	-3	-5	-8	-6	-5	-3	-2
17	-1	-5	-3	-1	-8	-2	-6	-7	-6	-7	-6	-4	-4	-6	-6
18	+1	-6	-3	-3	-6	-3	-4	-6	-5	-6	-5	-3	-3	-4	-5
19	+2	-5	-6	-2	-5	-3	-2	-5	-4	-6	-2	-4	-2	-4	-4
20	+1	-6	-8	-2	-3	-1	-4	-4	-4	-6	-2	-3	-2	-3	-3
21	+1	-6	-7	-2	-2	-2	-3	-2	-5	-6	-3	-4	-5	-2	-2
22	+1	-8	-7	-3	-1	-3	-5	-2	-5	-6	-3	-3	-5	-3	-3
23	+1	-7	-8	-2	-2	-3	-4	-2	-4	-6	-3	-2	-5	-3	-3
24	+1	-7	-8	-4	-2	-4	-4	-1	-2	-4	-2	-2	-2	-5	-3

1910.

1	-2	-3	-5	-4	-2	-4	-4	-2	-3	-5	-3	-2	-2	-4	-3
2	-2	-2	-5	-4	-2	-3	-5	-3	-2	-1	-2	0	-2	-3	-3
3	-1	-1	-4	-4	-4	-3	-4	-2	-2	-1	0	0	0	-3	-3
4	0	+1	-2	-1	-4	-2	-2	-2	-2	+1	+1	+2	+1	-1	-2
5	+3	+2	-3	-2	-4	-2	-2	-3	-1	+2	+2	+4	+3	-1	-3
6	+4	+4	-2	-2	-2	0	0	-2	-1	+3	+4	+5	+4	0	-1
7	+8	+7	+3	-3	-3	-2	+1	0	-2	+5	+9	+9	+8	+1	-1
8	+11	+9	+7	-3	+4	0	0	+3	-3	+6	+11	+11	+10	+2	+2
9	+8	+5	+7	+1	+1	+13	+3	+5	+9	-1	+6	+9	+6	+7	+7
10	+3	+1	+8	+9	+14	+8	+10	+12	+3	+8	+7	+5	+4	+7	+11
11	+3	+1	+11	+13	+13	+11	+11	+12	+6	+9	+6	+4	+3	+10	+12
12	+1	+4	+11	+12	+10	+11	+11	+9	+5	+9	+2	0	+2	+9	+10
13	-4	+3	+10	+10	+5	+6	+9	+5	+7	+6	-2	-6	-2	+8	+6
14	-4	+3	+8	+7	+1	+3	+5	0	+6	0	-6	-6	-3	+5	+2
15	-4	0	+6	+4	-3	-3	-1	-2	+1	-6	-6	-6	-4	+1	-2
16	-4	-4	-1	+1	-7	-5	-5	-4	-1	-8	-3	-4	-4	-2	-5
17	-3	-5	-3	-3	-8	-6	-8	-6	-4	-8	-3	-2	-3	-4	-5
18	-3	-4	-6	-4	-4	-3	-7	-5	-2	-7	-3	-2	-3	-5	-5
19	-2	-4	-9	-5	-4	-1	-4	-4	-2	-5	-3	-3	-5	-3	-3
20	-2	-4	-8	-5	-5	-1	-3	-4	-1	-3	-5	-2	-3	-4	-3
21	-3	-4	-7	-6	-3	-1	-3	-5	-1	-2	-5	-3	-4	-4	-3
22	-3	-3	-6	-4	-3	-1	-2	-3	-1	-3	-5	-4	-4	-4	-2
23	-2	-3	-5	-4	-2	-2	-2	-2	-1	-1	-4	-4	-3	-3	-2
24	-1	-3	-4	-4	-2	-3	-3	-1	+2	-3	-3	-2	-2	-2	-2

## Diurnal variation of vertical intensity.

1909.

Hour	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Group means		
	I	I	II	II	III	III	III	II	II	I	I	I	I	II	III
1	+ 3	+ 4	+ 3	+ 2	- 1	- 1	0	0	0	+ 1	+ 3	+ 3	+ 3	+ 2	0
2	+ 2	+ 4	+ 4	+ 2	0	- 1	0	0	+ 1	+ 2	+ 3	+ 3	+ 3	+ 2	0
3	+ 2	+ 4	+ 4	+ 3	- 1	- 1	- 1	0	+ 1	+ 2	+ 4	+ 4	+ 4	+ 2	- 1
4	+ 4	+ 4	+ 4	+ 3	- 1	- 1	0	0	+ 1	+ 3	+ 5	+ 5	+ 5	+ 3	0
5	+ 4	+ 4	+ 4	+ 3	0	- 1	+ 1	0	+ 2	+ 4	+ 6	+ 4	+ 4	+ 3	0
6	+ 4	+ 4	+ 4	+ 3	0	0	0	- 1	+ 2	+ 4	+ 3	+ 6	+ 4	+ 3	0
7	+ 5	+ 3	0	+ 2	- 1	- 1	- 2	- 5	- 3	+ 2	+ 1	+ 5	+ 3	0	- 2
8	+ 2	+ 1	- 1	- 1	- 2	- 1	- 3	- 6	- 4	- 2	- 4	+ 2	- 2	- 2	- 3
9	- 4	- 1	- 2	- 4	- 1	- 1	- 2	- 4	- 4	- 5	- 7	- 4	- 4	- 4	- 2
10	- 9	- 3	- 4	- 6	0	0	- 1	- 2	- 4	- 6	- 9	- 8	- 7	- 5	- 1
11	- 12	- 3	- 4	- 7	+ 2	+ 1	0	- 2	- 2	- 5	- 9	- 10	- 8	- 4	0
12	- 12	- 3	- 4	- 7	+ 2	+ 2	0	- 1	0	- 4	- 8	- 10	- 8	- 4	+ 1
13	- 9	- 5	- 5	- 6	+ 2	+ 2	0	0	0	- 5	- 5	- 10	- 7	- 4	+ 1
14	- 5	- 7	- 5	- 4	+ 2	+ 3	+ 1	+ 1	+ 1	- 4	- 3	- 6	- 5	- 3	+ 2
15	- 2	- 6	- 4	- 2	+ 2	+ 3	+ 2	+ 1	0	- 2	0	- 2	- 2	- 2	+ 2
16	+ 1	- 4	- 3	- 1	+ 1	+ 2	+ 3	+ 1	- 1	- 1	+ 2	+ 1	0	- 1	+ 2
17	+ 3	- 2	- 2	+ 1	- 1	+ 1	+ 1	+ 2	0	+ 1	+ 4	+ 2	+ 2	0	+ 1
18	+ 4	+ 1	0	+ 2	- 1	0	+ 1	+ 2	+ 2	+ 3	+ 4	+ 3	+ 3	+ 2	0
19	+ 4	+ 1	0	+ 3	- 1	0	+ 1	+ 3	+ 1	+ 3	+ 3	+ 2	+ 2	+ 2	+ 1
20	+ 3	+ 1	+ 2	+ 4	0	0	+ 0	+ 3	+ 2	+ 3	+ 2	+ 2	+ 2	+ 3	+ 1
21	+ 3	+ 1	+ 3	+ 4	0	0	6	+ 3	+ 1	+ 2	+ 1	+ 2	+ 2	+ 2	+ 1
22	+ 3	+ 1	+ 3	+ 3	0	- 1	- 1	+ 2	+ 1	+ 1	+ 2	+ 2	+ 2	+ 2	0
23	+ 3	+ 2	+ 3	+ 2	- 1	- 2	- 1	+ 1	+ 1	0	+ 1	+ 2	+ 2	+ 2	- 1
24	+ 3	+ 3	+ 3	+ 2	- 1	- 1	- 1	+ 1	+ 2	0	+ 2	+ 2	+ 2	+ 2	0

1910.

1	+ 4	+ 2	+ 2	+ 1	- 1	0	+ 1	+ 2	+ 3	+ 3	+ 4	+ 4	+ 3	+ 2	0
2	+ 4	+ 2	+ 3	+ 2	- 0	+ 1	+ 2	0	+ 4	+ 5	+ 4	+ 4	+ 4	+ 3	+ 1
3	+ 4	+ 3	+ 4	+ 2	+ 1	0	+ 3	- 1	+ 4	+ 5	+ 4	+ 4	+ 4	+ 4	+ 1
4	+ 4	+ 3	+ 5	+ 4	+ 1	0	+ 2	- 1	+ 5	+ 6	+ 5	+ 5	+ 4	+ 5	+ 1
5	+ 4	+ 3	+ 3	+ 3	+ 1	0	+ 2	- 1	+ 5	+ 6	+ 5	+ 5	+ 4	+ 4	0
6	+ 3	+ 3	+ 3	+ 3	+ 1	- 2	+ 1	- 1	+ 5	+ 5	+ 4	+ 3	+ 4	+ 4	0
7	+ 3	+ 4	+ 2	- 1	- 2	- 6	- 3	- 4	- 2	+ 3	+ 3	+ 3	+ 3	0	- 4
8	+ 1	0	0	- 4	- 2	- 6	- 6	- 6	- 6	- 2	- 1	0	0	- 3	- 5
9	- 3	- 5	- 2	- 4	- 1	- 6	- 7	- 4	- 7	- 6	- 6	- 5	- 5	- 4	
10	- 7	- 8	- 4	- 5	- 1	- 3	- 5	- 2	- 7	- 7	- 7	- 9	- 8	- 6	- 3
11	- 10	- 7	- 7	- 5	0	0	- 3	0	- 7	- 6	- 7	- 9	- 8	- 6	- 1
12	- 10	- 4	- 8	- 6	0	+ 1	- 1	+ 1	- 8	- 6	- 6	- 7	- 7	- 7	0
13	- 7	- 4	- 7	- 2	0	+ 4	0	+ 2	- 5	- 6	- 4	- 4	- 5	- 5	+ 2
14	- 6	- 4	- 3	- 1	+ 2	+ 6	+ 2	+ 2	- 4	- 5	- 3	- 2	- 4	- 3	+ 3
15	- 4	- 2	- 2	0	+ 3	+ 6	+ 2	+ 2	- 2	- 4	- 1	- 1	- 2	- 2	+ 3
16	0	- 2	- 2	0	+ 1	+ 4	+ 2	+ 2	- 2	- 2	+ 1	0	- 1	- 1	+ 2
17	0	+ 1	- 1	+ 1	+ 1	+ 2	0	+ 1	+ 1	0	+ 2	+ 1	+ 1	0	+ 1
18	+ 1	+ 2	+ 1	+ 2	+ 1	+ 2	0	+ 1	+ 3	+ 1	+ 2	+ 1	+ 1	+ 2	+ 1
19	+ 2	+ 2	+ 2	+ 3	0	+ 1	+ 1	0	+ 4	+ 2	+ 1	+ 2	+ 2	+ 3	+ 1
20	+ 2	+ 2	+ 3	+ 3	0	0	+ 1	0	+ 4	+ 3	0	+ 1	+ 1	+ 3	0
21	+ 3	+ 2	+ 3	+ 2	+ 0	- 1	+ 1	+ 1	+ 4	+ 2	0	+ 1	+ 2	+ 3	0
22	+ 3	+ 2	+ 2	+ 2	- 1	- 1	+ 1	+ 2	+ 3	+ 1	0	+ 2	+ 2	+ 2	0
23	+ 4	+ 2	+ 2	+ 1	- 2	- 1	+ 1	+ 1	+ 2	+ 3	+ 2	+ 1	+ 2	+ 2	0
24	+ 4	+ 2	+ 1	+ 1	- 2	- 1	+ 1	+ 2	+ 3	+ 1	+ 2	+ 3	+ 3	+ 2	0

## Diurnal variation of dip.

1909.

Hour	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Group means		
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III
	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'
1	+0.2	+0.7	+0.7	+0.3	+0.3	+0.3	+0.4	+0.2	+0.2	+0.3	+0.4	+0.2	+0.4	+0.4	+0.3
2	+0.1	+0.6	+0.7	+0.4	+0.2	+0.3	+0.4	+0.1	+0.2	+0.3	+0.4	+0.2	+0.3	+0.4	+0.3
3	+0.1	+0.6	+0.4	+0.4	+0.1	+0.2	+0.4	+0.1	+0.2	+0.3	+0.4	+0.1	+0.3	+0.3	+0.2
4	+0.1	+0.4	+0.4	+0.4	+0.1	+0.1	+0.4	+0.1	+0.1	+0.3	+0.4	+0.2	+0.3	+0.3	+0.2
5	+0.1	+0.3	+0.3	+0.4	+0.1	+0.1	+0.4	+0.1	+0.1	+0.3	+0.2	+0.1	+0.2	+0.3	+0.2
6	+0.0	+0.3	+0.2	+0.4	+0.1	0.0	+0.3	+0.1	+0.0	+0.1	0.0	0.0	+0.1	+0.2	+0.1
7	0.0	-0.1	-0.2	+0.3	-0.1	0.0	+0.1	-0.1	-0.2	-0.2	-0.4	-0.3	-0.2	-0.1	0.0
8	-0.3	-0.6	-0.6	+0.1	-0.3	0.0	-0.2	-0.4	-0.3	-0.6	-0.7	-0.6	-0.6	-0.3	-0.2
9	-0.4	-1.0	-0.8	-0.2	-0.5	0.0	-0.5	-0.6	-0.6	-0.9	-1.1	-0.8	-0.8	-0.6	-0.4
10	-0.6	-1.1	-0.9	-0.7	-0.7	-0.2	-0.8	-0.7	-0.7	-0.9	-1.2	-0.8	-0.9	-0.8	-0.6
11	-0.6	-0.9	-1.0	-1.0	-0.7	-0.4	-0.8	-0.7	-0.6	-0.8	-1.0	-0.6	-0.8	-0.8	-0.7
12	-0.3	-0.9	-1.0	-0.9	-0.5	-0.4	-0.8	-0.6	-0.5	-0.8	-0.8	-0.5	-0.6	-0.8	-0.6
13	+0.1	-0.7	-0.9	-0.9	-0.3	-0.5	-0.8	-0.4	-0.4	-0.7	-0.2	-0.2	-0.2	-0.7	-0.5
14	+0.2	-0.6	-0.5	-0.7	0.0	-0.3	-0.5	-0.1	-0.2	-0.4	+0.1	+0.2	0.0	-0.4	-0.2
15	+0.2	-0.3	-0.1	-0.4	+0.3	-0.1	-0.1	0.0	+0.1	-0.1	+0.4	+0.4	+0.2	-0.1	0.0
16	+0.3	0.0	0.0	0.0	+0.3	0.0	+0.2	+0.3	+0.1	+0.2	+0.6	+0.4	+0.3	+0.1	+0.2
17	+0.2	+0.2	+0.1	+0.1	+0.4	+0.2	+0.4	+0.5	+0.4	+0.5	+0.6	+0.3	+0.3	+0.3	+0.4
18	+0.1	+0.4	+0.2	+0.3	+0.3	+0.2	+0.3	+0.5	+0.4	+0.5	+0.5	+0.3	+0.3	+0.3	+0.3
19	+0.1	+0.3	+0.4	+0.3	+0.2	+0.2	+0.2	+0.4	+0.3	+0.5	+0.3	+0.3	+0.2	+0.4	+0.3
20	+0.1	+0.4	+0.6	+0.3	+0.2	+0.1	+0.2	+0.4	+0.3	+0.5	+0.2	+0.2	+0.2	+0.4	+0.2
21	+0.1	+0.4	+0.6	+0.3	+0.1	+0.1	+0.2	+0.3	+0.3	+0.5	+0.2	+0.2	+0.3	+0.4	+0.2
22	+0.1	+0.5	+0.6	+0.3	+0.1	+0.1	+0.2	+0.2	+0.3	+0.4	+0.3	+0.3	+0.3	+0.4	+0.2
23	+0.1	+0.5	+0.6	+0.2	+0.1	+0.1	+0.2	+0.2	+0.3	+0.4	+0.2	+0.2	+0.3	+0.4	+0.1
24	+0.1	+0.6	+0.6	+0.3	+0.1	+0.2	+0.2	+0.1	+0.2	+0.2	+0.2	+0.2	+0.3	+0.3	+0.2

1910.

1	+0.3	+0.3	+0.4	+0.3	+0.1	+0.2	+0.3	+0.2	+0.3	+0.4	+0.3	+0.3	+0.3	+0.3	+0.2
2	+0.3	+0.2	+0.4	+0.3	+0.1	+0.2	+0.4	+0.2	+0.3	+0.3	+0.3	+0.3	+0.3	+0.3	+0.2
3	+0.3	+0.2	+0.4	+0.3	+0.3	+0.2	+0.4	+0.1	+0.3	+0.3	+0.2	+0.2	+0.3	+0.2	+0.2
4	+0.2	+0.1	+0.4	+0.3	+0.3	+0.1	+0.2	+0.1	+0.4	+0.2	+0.2	+0.1	+0.2	+0.3	+0.2
5	0.0	0.0	+0.3	+0.3	+0.3	+0.1	+0.2	+0.1	+0.3	+0.2	+0.1	0.0	+0.3	+0.3	+0.2
6	-0.1	-0.1	+0.3	+0.3	+0.2	-0.1	0.0	+0.1	+0.3	+0.1	0.0	-0.1	-0.1	+0.2	+0.1
7	-0.3	-0.2	-0.1	+0.1	+0.1	-0.2	-0.2	-0.2	0.0	-0.1	-0.4	-0.4	-0.3	0.0	-0.1
8	-0.6	-0.5	-0.4	0.0	-0.3	-0.3	-0.3	-0.5	-0.5	-0.1	-0.5	-0.6	-0.6	-0.3	-0.4
9	-0.6	-0.5	-0.5	-0.3	-0.3	-0.8	-0.5	-0.6	-0.7	-0.3	-0.7	-0.8	-0.7	-0.4	-0.6
10	-0.5	-0.5	-0.7	-0.8	-0.9	-0.6	-0.8	-0.8	-0.5	-0.8	-0.8	-0.7	-0.6	-0.7	-0.8
11	-0.7	-0.4	-1.0	-1.0	-0.8	-0.6	-0.8	-0.7	-0.7	-0.8	-0.7	-0.7	-0.6	-0.9	-0.7
12	-0.6	-0.4	-1.0	-1.0	-0.6	-0.6	-0.7	-0.5	-0.7	-0.8	-0.4	-0.4	-0.5	-0.9	-0.6
13	-0.1	-0.4	-0.9	-0.7	-0.3	-0.2	-0.5	-0.2	-0.7	-0.7	-0.1	+0.2	-0.1	-0.7	-0.3
14	-0.1	-0.4	-0.6	-0.5	0.0	+0.1	-0.2	+0.1	-0.6	-0.2	+0.2	+0.3	0.0	-0.5	0.0
15	0.0	-0.1	-0.5	-0.2	+0.3	+0.5	0.0	+0.2	-0.2	+0.2	+0.3	+0.3	+0.1	-0.2	+0.3
16	+0.2	+0.1	0.0	-0.1	+0.5	+0.5	+0.4	+0.3	0.0	+0.4	+0.2	+0.2	+0.2	+0.1	+0.4
17	+0.2	+0.3	+0.1	+0.2	+0.5	+0.5	+0.5	+0.4	+0.3	+0.5	+0.3	+0.2	+0.2	+0.3	+0.5
18	+0.2	+0.3	+0.4	+0.3	+0.3	+0.3	+0.4	+0.3	+0.3	+0.5	+0.3	+0.2	+0.2	+0.4	+0.3
19	+0.2	+0.3	+0.6	+0.4	+0.2	+0.1	+0.3	+0.2	+0.3	+0.4	+0.2	+0.3	+0.3	+0.4	+0.2
20	+0.2	+0.3	+0.6	+0.4	+0.3	+0.1	+0.2	+0.2	+0.3	+0.3	+0.3	+0.2	+0.2	+0.4	+0.2
21	+0.3	+0.3	+0.6	+0.5	+0.2	0.0	+0.2	+0.3	+0.3	+0.2	+0.3	+0.2	+0.3	+0.4	+0.2
22	+0.3	+0.3	+0.3	+0.5	+0.3	+0.1	0.0	+0.2	+0.3	+0.2	+0.2	+0.3	+0.3	+0.3	+0.1
23	+0.3	+0.3	+0.4	+0.3	0.0	+0.1	+0.2	+0.2	+0.2	+0.2	+0.2	+0.3	+0.3	+0.3	+0.1
24	+0.3	+0.3	+0.3	+0.3	0.0	+0.1	+0.2	+0.2	0.0	+0.2	+0.2	+0.3	+0.3	+0.2	+0.1

## DIURNAL VARIATION.

*Diurnal variation of X.*

1909.

Hour	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Group means		
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III
1	r 0	- 8	- 10	- 4	- 5	- 6	- 7	- 3	- 3	- 5	- 5	r 0	- 3	- 5	- 5
2	0	- 7	- 8	- 5	- 4	- 6	- 6	- 2	- 2	- 4	- 4	0	- 3	- 5	- 5
3	0	- 6	- 4	- 5	- 3	- 4	- 7	- 1	- 2	- 4	- 4	+ 1	- 2	- 4	- 4
4	+ 1	- 4	- 3	- 5	- 2	- 3	- 6	- 1	- 1	- 2	- 2	+ 1	- 1	- 3	- 3
5	+ 2	- 2	- 1	- 4	- 2	- 2	- 6	- 2	- 2	- 1	- 0	+ 3	+ 1	- 2	- 3
6	+ 3	- 3	- 1	- 4	- 1	0	- 5	- 1	+ 1	+ 1	+ 2	+ 5	+ 2	- 1	- 2
7	+ 5	+ 4	+ 4	- 2	+ 2	0	- 2	- 1	+ 2	+ 5	+ 7	+ 10	+ 6	+ 2	0
8	+ 7	+ 11	+ 9	- 1	+ 4	0	+ 1	+ 2	+ 3	+ 9	+ 10	+ 12	+ 5	+ 2	+ 2
9	+ 5	+ 16	+ 13	+ 1	+ 9	+ 1	+ 7	+ 8	+ 7	+ 12	+ 13	+ 11	+ 8	+ 6	+ 6
10	+ 4	+ 16	+ 13	+ 8	+ 12	+ 4	+ 12	+ 10	+ 9	+ 11	+ 14	+ 8	+ 11	+ 10	+ 9
11	+ 1	+ 13	+ 13	+ 12	+ 13	+ 8	+ 14	+ 11	+ 9	+ 10	+ 10	+ 3	+ 7	+ 11	+ 12
12	- 5	+ 12	+ 14	+ 10	+ 11	+ 9	+ 14	+ 9	+ 7	+ 10	+ 7	0	+ 4	+ 10	+ 11
13	- 9	+ 7	+ 11	+ 9	+ 5	+ 10	+ 13	+ 6	+ 6	+ 7	0	- 5	- 2	+ 8	+ 9
14	- 9	+ 4	+ 5	+ 7	+ 1	+ 7	+ 8	+ 3	+ 3	+ 2	- 4	- 9	- 4	+ 4	+ 5
15	- 6	0	- 2	+ 4	- 4	+ 4	+ 2	- 1	- 2	- 1	- 7	- 9	- 5	0	0
16	- 5	- 3	- 3	- 1	- 5	+ 1	- 1	- 5	- 3	- 5	- 8	- 6	- 3	- 2	- 2
17	- 1	- 5	- 3	- 1	- 8	- 2	- 6	- 7	- 6	- 7	- 6	- 4	- 4	- 6	- 6
18	+ 1	- 6	- 3	- 3	- 6	- 3	- 4	- 6	- 5	- 6	- 5	- 3	- 3	- 4	- 5
19	+ 2	- 5	- 6	- 2	- 5	- 3	- 2	- 5	- 4	- 6	- 2	- 4	- 2	- 4	- 4
20	+ 1	- 6	- 8	- 2	- 3	- 1	- 4	- 4	- 4	- 6	- 2	- 3	- 2	- 5	- 3
21	+ 1	- 6	- 7	- 2	- 2	- 2	- 3	- 2	- 5	- 6	- 3	- 4	- 3	- 5	- 2
22	+ 1	- 8	- 7	- 3	- 1	- 3	- 5	- 2	- 5	- 6	- 3	- 3	- 3	- 5	- 3
23	+ 1	- 7	- 8	- 2	- 2	- 3	- 4	- 2	- 4	- 6	- 3	- 2	- 3	- 5	- 3
24	+ 1	- 7	- 8	- 4	- 2	- 4	- 4	- 1	- 2	- 4	- 2	- 2	- 2	- 5	- 3

1910.

1	- 2	- 3	- 5	- 4	- 2	- 4	- 4	- 2	- 3	- 5	- 3	- 2	- 2	- 4	- 3
2	- 2	- 2	- 5	- 4	- 2	- 3	- 5	- 3	- 2	- 1	- 2	0	- 2	- 3	- 3
3	- 1	- 1	- 4	- 4	- 4	- 3	- 4	- 2	- 2	- 1	- 0	0	- 3	- 3	- 3
4	0	+ 1	- 2	- 1	- 4	- 2	- 2	- 2	- 2	+ 1	+ 1	+ 2	+ 1	- 1	- 2
5	+ 3	+ 2	- 3	- 2	- 4	- 2	- 2	- 3	- 1	+ 2	+ 2	+ 4	+ 3	- 1	- 3
6	+ 4	+ 4	- 2	- 2	- 1	+ 1	0	- 2	0	+ 3	+ 4	+ 5	+ 4	0	0
7	+ 8	+ 7	+ 3	- 2	- 2	- 1	+ 2	+ 1	- 1	+ 5	+ 9	+ 9	+ 8	+ 1	0
8	+ 11	+ 9	+ 7	- 2	+ 5	+ 1	+ 1	+ 4	- 2	+ 7	+ 11	+ 11	+ 10	+ 3	+ 3
9	+ 9	+ 6	+ 8	+ 2	+ 2	+ 4	+ 6	+ 10	+ 0	+ 7	+ 10	+ 7	+ 8	+ 4	+ 8
10	+ 4	+ 2	+ 9	+ 10	+ 14	+ 8	+ 10	+ 12	+ 3	+ 9	+ 7	+ 6	+ 5	+ 8	+ 11
11	+ 4	+ 1	+ 11	+ 13	+ 13	+ 11	+ 11	+ 12	+ 6	+ 9	+ 6	+ 5	+ 4	+ 10	+ 12
12	+ 1	+ 4	+ 11	+ 12	+ 10	+ 11	+ 11	+ 9	+ 4	+ 9	0	+ 2	+ 9	+ 10	
13	- 4	+ 2	+ 10	+ 9	+ 4	+ 5	+ 8	+ 4	+ 6	+ 6	- 2	- 6	- 2	+ 8	+ 5
14	- 5	+ 2	+ 8	+ 6	0	+ 2	+ 4	- 1	+ 5	0	- 6	- 6	- 7	- 4	+ 1
15	- 5	0	+ 6	+ 3	- 4	- 3	- 3	0	- 3	- 0	- 6	- 6	- 7	- 4	- 3
16	- 4	- 4	- 1	+ 1	- 7	- 5	- 5	- 4	- 4	- 1	- 8	- 3	- 4	- 2	- 5
17	- 3	- 5	- 3	- 3	- 8	- 6	- 8	- 6	- 4	- 4	- 3	- 2	- 3	- 4	- 7
18	- 3	- 4	- 6	- 4	- 4	- 3	- 7	- 5	- 2	- 7	- 3	- 2	- 3	- 5	- 5
19	- 2	- 4	- 9	- 5	- 4	- 1	- 4	- 4	- 2	- 5	- 3	- 3	- 3	- 5	- 3
20	- 2	- 4	- 8	- 5	- 5	- 1	- 3	- 4	- 1	- 3	- 5	- 2	- 3	- 4	- 3
21	- 3	- 4	- 7	- 6	- 3	- 1	- 3	- 5	- 1	- 2	- 5	- 3	- 4	- 4	- 3
22	- 3	- 3	- 6	- 4	- 3	- 1	- 2	- 3	- 1	- 3	- 5	- 4	- 4	- 4	- 2
23	- 2	- 3	- 5	- 4	- 2	- 2	- 2	- 1	- 1	- 2	- 4	- 4	- 3	- 3	- 2
24	- 1	- 3	- 4	- 4	- 2	- 3	- 3	- 1	+ 2	- 3	- 3	- 2	- 2	- 2	- 2

Diurnal variation of  $Y$ .

1909.

Hour	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Group means		
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III
1	-3	-1	0	-1	+2	-1	-2	-1	0	-1	-2	-3	-2	-1	-1
2	-4	0	0	+2	-1	-1	-1	-1	0	-1	-3	-3	-2	0	0
3	-3	-1	-1	0	+3	0	-1	0	+3	+1	-1	-2	-2	+1	+1
4	-3	+1	-1	+2	+4	+1	+1	+3	+4	+3	0	-2	-1	+2	+2
5	-3	+2	0	+4	+5	+3	+4	+6	+5	+4	-2	-2	-1	+3	+4
6	-2	+3	+4	+5	+12	+10	+11	+18	+11	+6	-1	-1	+1	+7	+13
7	-1	+2	+7	+15	+21	+19	+23	+33	+20	+10	+6	-2	+1	+13	+24
8	+9	+6	+11	+22	+20	+22	+25	+30	+16	+15	+5	+9	+18	+24	
9	+24	+8	+13	+24	+15	+19	+18	+15	+17	+19	+18	+13	+16	+18	+17
10	+31	+5	+15	+22	+5	+12	+12	+5	+8	+14	+15	+18	+17	+15	+9
11	+25	-3	+10	+13	-3	+6	+4	-9	-5	+1	+5	+13	+10	+5	0
12	+8	-6	+5	+1	-7	-5	-1	-14	-14	-8	-4	+3	0	-4	-7
13	-8	-6	-2	-13	-13	-10	-9	-18	-20	-12	-9	-7	-7	-12	-12
14	-16	-4	-10	-23	-16	-15	-15	-19	-14	-12	-13	-11	-16	-16	
15	-17	-2	-13	-25	-16	-14	-15	-16	-13	-14	-12	-15	-12	-16	-15
16	-13	-1	-12	-19	-12	-11	-12	-10	-8	-10	-10	-9	-12	-11	
17	-8	-3	-10	-12	-6	-7	-8	-5	-4	-6	-8	-5	-6	-8	-6
18	-5	-2	-6	-5	-6	-7	-7	-3	-4	-4	-4	-2	-3	-5	-6
19	-2	-1	-3	-4	-4	-5	-7	-2	-2	-2	-2	+3	-1	-3	-5
20	-1	0	-3	-3	-3	-5	-7	-3	-2	-1	+2	+3	+1	-2	-5
21	0	+1	-1	-3	-2	-4	-6	-3	-1	0	+1	+4	+2	-1	-4
22	0	+1	-1	-2	-1	-3	-3	-2	0	0	+2	+3	+2	-1	-2
23	-2	0	-1	0	0	-2	-2	-1	-1	-1	+1	0	-1	-1	-1
24	-3	0	0	-1	0	-2	-2	-2	-1	-2	0	-2	-1	-1	-2

1910.

1	-2	-2	-3	-2	+2	-2	+1	-2	0	-1	-2	-2	-2	-2	-2	0
2	-3	-2	-2	+1	+3	+1	+1	-1	0	-2	-2	-3	-3	-3	-1	+1
3	-2	-3	-2	+1	+4	+3	+1	-2	+2	-1	-3	-3	-3	-3	-2	+2
4	-3	-2	-1	+2	+7	+3	+3	+2	+4	0	-2	-4	-3	-3	+1	+4
5	-3	-1	+3	+3	+10	+6	+5	+5	+8	+1	0	-3	-2	+4	+7	+13
6	-2	0	+5	+8	+16	+16	+11	+9	+16	+4	+1	-1	0	+8	+13	
7	-3	+1	+7	+15	+21	+25	+22	+24	+31	+10	+4	-2	0	+16	+23	
8	+5	+11	+11	+19	+20	+24	+28	+26	+30	+18	+10	+8	+9	+20	+24	
9	+18	+22	+17	+18	+10	+16	+21	+20	+19	+20	+14	+18	+18	+18	+17	
10	+25	+23	+15	+15	-1	+6	+11	+9	+5	+14	+12	+22	+21	+12	+6	
11	+23	+11	+11	+7	-8	-2	+2	-1	-10	+4	+5	+13	+13	+3	-2	
12	+7	-5	+4	-4	-13	-10	-9	-9	-21	-4	-3	-1	-1	-6	-10	
13	-8	-14	-5	-17	-17	-15	-16	-14	-29	-7	-7	-12	-10	-15	-15	
14	-15	-15	-10	-22	-18	-14	-21	-18	-25	-10	-8	-17	-14	-17	-18	
15	-16	-12	-11	-19	-17	-12	-19	-16	-15	-10	-8	-13	-12	-14	-16	
16	-12	-6	-8	-12	-10	-7	-12	-11	-6	-11	-7	-9	-8	-9	-10	
17	-7	-3	-6	-3	-5	-4	-6	-6	-1	-9	-4	-3	-4	-5	-5	
18	-4	-3	-6	-1	-2	-6	-6	-5	-2	-6	-3	+1	-2	-4	-5	
19	-2	-1	-5	-1	-2	-7	-5	-4	-2	-4	-1	+2	0	-3	-4	
20	-1	+1	-4	-1	-1	-7	-5	-3	-1	-2	+2	+3	+1	-2	-4	
21	0	+3	-4	-1	-1	-6	-4	-1	-1	0	+3	+4	+3	-2	-3	
22	+1	+2	-4	-1	0	-4	-2	0	0	-1	+2	+3	+2	-2	-2	
23	0	-1	-3	-2	0	-3	-2	0	0	-1	0	+2	0	-2	-1	
24	0	-2	-3	-2	+1	-2	-1	-2	-1	-2	-2	-1	-1	-2	-1	

*Summary of monthly means.*

1909.

Month	D	H	I	X	Y	Z	F
January.....	° / -2 07.3	28990	49 41.0	28970	- 1073	34163	44805
February.....	08.1	996	40.5	976	080	162	808
March.....	08.7	984	41.3	964	085	163	802
April.....	09.7	987	41.5	966	093	170	808
May.....	10.9	969	43.4	948	103	188	811
June.....	11.4	971	43.3	949	107	187	812
July.....	12.2	967	43.6	945	114	189	811
August.....	12.9	950	44.7	929	119	191	801
September.....	13.9	946	45.1	924	127	194	801
October.....	14.5	901	48.2	879	130	204	780
November.....	14.9	907	47.8	885	134	203	782
December.....	15.7	898	48.3	876	140	203	776
Mean.....	-2 11.7	28956	49 44.1	28934	-1108	34185	44800

1910.

January.....	-2 16.4	28901	49 48.5	28878	-1146	34209	44783
February.....	17.1	898	48.6	875	152	209	782
March.....	17.6	891	49.4	868	156	215	782
April.....	18.7	881	50.4	858	165	225	782
May.....	19.7	872	51.3	848	173	233	783
June.....	20.2	873	51.3	849	177	233	783
July.....	21.2	868	51.6	844	185	233	780
August.....	22.0	850	53.2	826	191	245	779
September.....	22.6	847	53.6	822	196	248	779
October.....	23.1	830	55.0	804	200	256	773
November.....	23.7	830	55.2	804	205	260	776
December.....	24.7	819	55.9	794	213	262	770
Mean.....	-2 20.6	28863	49 52.0	28839	-1180	34236	44779

*Summary of annual means.*

Year	D	H	I	X	Y	Z	F
1903.....	° / -1 23.2	29365	49 10.0	29356	- 710	33980	44910
1904.....	1 31.0	295	15.0	285	776	33999	879
1905.....	1 38.3	250	17.0	238	836	33986	840
1906.....	1 45.9	202	22.1	188	900	34033	844
1907.....	1 53.7	135	29.3	119	963	34100	851
1908.....	2 02.5	29050	36.3	29032	1035	34140	827
1909.....	2 11.7	28956	44.1	28934	1108	34185	800
1910.....	-2 20.6	28863	52.0	28839	-1180	34236	779

JANUARY, 1909.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	07.1	07.1	07.4	08.0	07.5	07.3	05.3	02.4	01.8	03.2	05.4	07.5	09.3	09.2	08.1
2	06.5	06.8	06.6	07.0	08.3	06.7	06.2	06.2	04.2	03.3	06.5	08.4	09.5	09.8	09.6
3	07.4	07.5	07.5	07.6	07.5	07.2	06.4	05.0	01.1	02.4	06.2	09.4	08.7	09.3	11.4
4	06.4	06.4	06.3	07.0	08.4	07.4	07.2	06.1	04.6	03.6	05.3	07.2	08.4	08.7	08.4
5	07.5	07.4	07.7	07.4	07.2	07.2	07.2	06.3	04.3	03.3	03.4	06.9	10.3	10.5	09.4
6*	08.0	07.8	07.5	07.6	07.5	07.4	07.1	05.4	04.5	04.2	04.4	06.2	08.4	09.9	09.4
7	07.4	07.4	07.3	07.3	06.9	06.4	07.3	06.3	05.5	05.5	05.6	06.4	09.1	09.4	09.1
8*	07.4	07.4	07.4	07.3	07.3	07.1	07.3	05.9	04.3	04.0	04.3	08.0	09.4	10.3	10.1
9*	07.4	07.9	07.5	07.5	07.9	07.5	07.4	06.0	04.3	04.0	04.2	06.0	10.0	10.3	09.2
10*	07.4	07.5	07.4	08.0	07.5	07.3	06.7	05.2	03.2	02.2	04.3	06.4	08.6	10.3	10.4
11*	08.1	08.2	08.3	08.0	08.6	07.6	07.3	06.1	03.2	01.5	03.3	06.1	07.7	08.3	08.5
12*	07.9	08.1	08.1	07.8	07.8	07.5	07.6	06.1	04.0	02.4	04.7	07.1	08.5	09.5	09.4
13	07.8	08.2	08.4	08.2	08.3	07.1	07.3	05.4	05.3	04.2	05.1	06.2	07.4	09.1	09.5
14	08.0	08.6	07.7	07.4	07.6	08.2	08.0	06.4	04.5	03.2	03.9	06.2	07.8	08.3	08.3
15	07.6	07.6	07.8	07.5	08.2	07.5	07.6	07.0	06.1	05.0	05.0	06.0	07.5	08.1	08.1
16*	07.6	07.6	07.6	07.6	07.6	07.7	07.6	06.6	05.2	04.0	04.0	06.0	07.2	07.7	08.2
17*	07.6	07.4	07.6	07.5	07.6	07.9	08.2	07.0	04.5	03.0	02.5	04.9	06.4	08.3	09.3
18	07.7	08.2	08.2	08.3	08.1	07.5	07.6	07.0	04.9	03.6	03.2	07.9	08.3	08.3	08.2
19	07.9	07.9	08.2	08.0	07.3	07.3	08.1	07.1	05.3	04.5	05.5	06.9	(08.8)	(09.0)	(08.8)
20	08.2	08.2	08.1	08.1	07.7	07.4	07.2	05.7	04.9	03.2	04.2	07.0	08.3	09.0	09.0
21*	08.1	08.2	08.1	08.0	08.0	07.5	07.9	07.1	05.9	06.0	06.2	07.7	10.0	10.2	09.8
22*	08.2	08.2	08.2	08.2	08.1	07.4	07.4	06.7	05.5	05.2	05.1	05.8	07.6	09.0	09.5
23	08.1	08.1	08.1	08.0	07.7	07.5	07.5	06.3	04.9	03.5	04.0	05.6	07.4	08.7	09.1
24	07.6	08.0	08.1	08.1	07.5	07.8	07.7	06.9	05.0	03.8	04.1	06.9	09.2	10.9	10.5
25	07.6	07.2	07.8	07.6	07.3	07.2	08.1	08.1	07.1	06.0	06.1	08.1	10.6	12.2	12.0
26	07.1	09.1	08.3	08.1	08.1	08.0	08.2	07.1	05.3	04.8	05.1	05.2	07.8	10.0	11.6
27	07.9	08.1	08.2	08.2	08.2	16.1	09.0	07.2	06.6	05.3	05.1	07.0	09.0	10.4	11.0
28	07.9	08.1	09.1	08.3	08.1	08.3	07.9	06.0	04.9	04.1	04.0	05.8	(8.5)	10.1	09.6
29	08.6	08.5	08.2	09.9	10.0	09.2	10.8	09.3	06.5	06.5	06.4	08.0	09.8	10.3	09.3
30	07.5	08.4	11.5	08.8	10.2	10.2	08.1	07.2	04.1	03.8	04.0	06.0	08.9	10.1	10.3
31	07.5	08.1	07.4	07.9	07.6	07.2	08.3	07.5	07.1	05.0	04.0	03.6	05.3	06.9	07.9
Mean.....	07.6	07.8	07.9	07.9	07.9	08.0	07.6	06.4	04.8	04.0	04.7	06.7	08.5	09.4	09.4
Mean*....	07.8	07.8	07.8	07.8	07.7	07.5	07.4	06.2	04.5	03.6	04.3	06.4	08.4	09.4	09.4

FEBRUARY, 1909.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	07.9	08.0	08.0	08.0	08.0	07.8	08.0	07.0	05.7	03.9	04.0	05.2	07.6	08.7	09.1
2	07.0	07.7	08.0	07.9	07.6	07.7	09.0	08.8	05.8	03.8	04.7	09.0	09.1	08.2	07.9
3	07.0	05.7	(5.9)	06.3	07.0	07.1	07.0	05.7	04.5	03.9	05.8	07.0	08.4	09.1	09.1
4	07.1	07.7	07.4	07.5	07.7	07.5	07.8	07.7	06.0	05.8	07.5	08.6	08.0	07.8	07.3
5	08.0	08.6	08.0	07.9	08.0	08.0	07.2	06.7	06.1	06.8	08.4	09.0	08.8	08.0	08.0
6	08.3	08.0	07.6	08.1	08.0	08.0	08.0	07.1	05.9	06.8	09.1	10.3	09.1	08.3	07.1
7	08.0	08.0	08.0	08.0	08.0	07.9	07.4	06.0	05.0	06.2	08.0	09.4	10.1	09.2	08.6
8	08.2	08.0	08.	07.8	07.8	07.8	07.1	06.8	07.2	08.1	10.2	11.2	11.9	10.9	69.3
9	08.1	08.6	08.0	07.1	07.4	07.5	07.2	06.9	06.4	07.0	09.5	10.1	11.0	10.2	09.1
10	07.6	07.5	07.5	07.5	06.5	06.7	06.8	07.3	07.1	08.1	09.5	10.6	11.4	11.5	09.7
11*	08.1	08.0	07.9	07.9	07.4	07.0	06.8	05.8	06.1	07.2	08.6	08.8	09.0	09.8	09.7
12*	07.9	08.0	08.3	08.1	08.0	07.9	08.0	07.6	06.8	06.8	08.1	09.1	09.9	10.0	10.0
13*	07.6	07.8	07.8	07.8	07.8	07.7	08.3	08.2	07.2	06.9	07.7	07.9	07.8	07.1	07.2
14*	07.9	07.9	07.9	08.0	08.2	07.8	08.7	07.7	05.7	04.9	05.8	05.8	06.7	07.7	07.7
15	08.0	08.0	08.1	08.0	07.9	07.9	08.1	07.6	06.5	05.9	06.9	06.8	05.9	05.9	06.9
16*	08.1	08.0	08.1	08.0	07.9	07.9	08.8	08.1	07.8	07.3	07.9	08.3	08.8	08.9	08.2
17*	08.6	08.1	08.2	08.3	07.9	07.9	08.6	07.9	08.6	07.9	08.8	08.9	08.5	07.9	07.9
18*	08.5	08.3	08.1	08.0	07.9	07.9	08.4	07.9	08.0	08.9	09.6	10.0	09.1	08.5	07.9
19*	08.4	08.4	08.3	08.0	07.8	07.7	07.8	07.8	07.9	08.8	09.9	09.9	08.8	07.4	06.6
20*	08.3	08.3	08.2	08.6	07.8	07.7	07.3	07.1	07.9	08.7	10.2	11.0	09.9	09.4	07.9
21	07.9	08.6	08.7	07.9	07.3	07.1	06.5	06.8	07.7	10.2	11.8	12.4	12.0	10.8	08.7
22	08.8	08.1	07.9	07.9	07.1	06.6	07.0	06.9	07.2	09.2	11.3	11.9	11.0	11.0	08.3
23	07.4	08.8	08.8	07.7	07.0	05.8	05.7	04.1	04.9	06.8	09.0	10.2	10.9	10.8	09.7
24	08.9	08.8	09.0	08.0	09.0	06.6	05.4	03.8	04.3	06.0	09.7	11.8	11.9	11.9	10.7
25*	08.7	08.6	08.8	08.2	07.7	07.0	06.6	04.9	04.9	06.1	07.7	08.4	(09.1)	09.6	(09.5)
26	08.6	08.7	08.7	08.4	08.0	07.7	07.0	05.1	05.1	05.7	07.1	08.9	10.1	10.9	10.9
27	08.9	07.9	08.1	07.9	07.9	07.9	07.9	07.7	07.0	07.5	08.3	08.5	08.0	07.9	07.9
28	08.0	07.9	07.9	07.9	07.6	07.6	07.9	08.0	08.6	08.9	08.7	08.1	07.8	07.7	07.7
Mean.....	08.1	08.0	08.0	07.9	07.7	07.5	07.5	06.9	06.5	06.9	08.4	09.2	09.3	09.1	08.5
Mean*....	08.2	08.1	08.2	08.0	07.8	07.6	07.9	07.3	07.1	07.4	08.4	08.8	08.5	08.3	08.3

\*The mean hours given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

21

JANUARY, 1909.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
07.6	07.4	07.4	07.3	06.4	06.2	07.2	07.3	07.2	06.7	14 18	09.7	9 21	01.7	8.0
08.6	08.1	07.8	08.0	06.4	06.4	07.2	07.0	07.2	07.2	14 34	10.3	8 01	03.2	7.1
11.4	09.5	07.7	05.3	06.3	06.3	07.4	08.0	07.2	07.2	15 37	13.1	8 54	00.6	12.5
08.4	08.3	06.6	07.4	07.4	05.4	07.4	07.6	07.4	07.0	14 00	08.7	10 00	03.6	5.1
08.1	07.5	07.9	07.5	07.4	07.4	07.5	07.7	07.8	07.3	13 32	10.8	10 00	03.3	7.5
08.7	08.1	07.9	07.7	07.6	07.5	07.5	07.5	07.5	07.3	14 00	09.9	9 49	03.5	6.4
08.3	08.0	07.8	07.7	07.4	07.4	07.4	07.3	07.4	07.3	14 00	09.4	9 32	05.3	4.1
09.1	08.3	08.0	07.8	07.4	07.3	07.1	07.3	07.4	07.4	14 00	10.3	10 29	03.6	6.7
08.4	07.7	07.8	07.4	07.3	07.3	07.3	07.3	07.3	07.3	14 00	10.3	10 00	04.0	6.3
09.4	08.8	08.1	07.5	07.1	07.3	07.3	08.2	07.2	15 00	10.4	10 00	02.2	8.2	10
08.4	08.3	08.1	07.8	07.4	07.4	07.4	07.5	07.6	07.1	15 00	08.5	10 13	01.2	7.3
09.1	08.4	08.0	07.4	07.4	07.3	07.4	07.4	07.5	07.4	14 38	09.6	10 00	02.4	7.2
09.3	08.4	08.2	07.6	07.1	07.3	06.8	07.0	07.3	07.4	14 49	10.2	10 14	03.3	6.9
08.3	08.3	08.0	06.7	07.3	07.1	07.1	07.3	07.3	07.1	14 33	08.5	10 24	02.9	5.6
08.5	09.0	08.2	07.7	07.5	07.2	07.2	07.2	07.3	07.4	16 36	08.9	11 00	05.0	3.9
08.5	09.1	08.1	07.5	07.6	07.3	07.2	07.4	07.5	07.2	16 15	08.9	10 24	03.2	5.7
09.3	08.4	08.1	07.8	07.7	07.3	07.5	07.5	07.4	07.1	15 26	09.5	10 41	02.1	7.4
08.0	08.3	07.8	07.5	07.3	07.3	07.3	07.7	07.4	14 00	08.3	9 56	03.3	5.0	18
(08.3)	08.1	07.4	06.1	06.9	07.1	07.5	07.8	08.1	07.4	(14 00)	(09.0)	10 00	04.5	4.5
08.3	08.0	07.7	07.4	07.3	07.4	07.7	08.0	07.3	15 00	09.0	10 00	03.2	5.8	20
09.1	08.1	07.6	07.4	07.3	07.4	07.4	07.8	08.1	07.9	14 00	10.2	9 32	05.7	4.5
09.5	08.4	07.9	07.6	07.5	07.4	07.6	07.9	08.1	07.6	15 37	09.8	11 00	05.1	4.7
09.0	08.1	07.8	07.5	07.3	07.1	07.1	07.1	07.2	07.0	15 00	09.1	10 20	03.5	5.6
10.0	09.1	08.1	07.9	07.1	07.1	07.1	07.4	07.3	07.6	14 35	11.1	10 00	03.8	7.3
12.1	10.0	07.8	08.0	07.5	07.1	07.0	07.1	07.0	08.2	15 16	12.3	10 29	05.8	6.5
10.4	09.3	08.2	07.9	07.3	07.0	06.8	07.4	07.6	07.7	15 22	11.1	10 28	04.0	7.1
09.5	07.3	07.3	06.2	07.1	07.1	06.9	07.3	07.2	07.8	14 45	11.2	10 40	04.3	6.9
09.2	08.9	07.9	07.1	07.1	06.1	06.1	06.9	07.4	07.4	14 41	10.4	9 23	02.2	8.2
09.1	08.2	08.2	09.2	05.5	06.3	07.1	07.2	07.5	08.3	4 38	11.0	19 51	04.7	6.3
10.8	10.2	07.5	07.1	03.8	06.7	06.0	02.2	03.6	07.4	2 54	12.2	10 10	02.7	9.5
09.0	07.0	09.0	08.1	07.1	07.9	07.5	07.6	07.7	07.6	6 05	18.1	11 42	03.1	15.0
09.1	08.4	07.9	07.5	07.1	07.0	07.2	07.2	07.4	07.4				6.9	
09.0	08.4	08.0	07.6	07.4	07.3	07.4	07.5	07.7	07.4				6.4	

FEBRUARY, 1909.

2° WEST PLUS TABULAR MINUTES.

09.2	09.7	08.9	08.0	08.0	07.9	05.0	07.6	07.1	07.4	17 00	09.8	10 00	03.9	5.9
07.8	09.6	07.5	08.2	08.0	07.3	07.0	07.0	06.8	07.6	6 42	10.1	9 44	03.1	7.0
09.4	09.0	08.8	08.3	08.2	08.1	07.5	07.4	07.3	07.2	15 34	09.9	9 48	03.8	6.1
07.2	08.0	08.3	08.0	07.9	07.8	07.8	08.0	08.1	07.6	12 05	08.5	9 52	05.2	3.3
07.4	07.5	08.1	08.0	07.9	06.0	06.9	07.6	07.8	07.7	13 00	09.0	8 34	06.0	3.0
06.7	06.5	07.5	07.9	07.7	07.9	08.0	08.0	08.0	07.8	12 19	10.4	9 00	05.9	4.5
07.1	07.1	07.8	07.2	06.9	07.5	08.0	08.0	08.0	07.7	13 00	10.1	9 00	05.0	5.1
07.9	06.9	07.9	07.9	07.8	07.0	08.0	08.0	08.2	08.3	13 00	11.9	7 55	06.8	5.1
07.8	07.3	07.7	07.7	07.5	06.6	07.3	08.8	07.3	08.0	13 00	11.0	9 00	06.4	4.6
07.6	07.6	07.8	07.4	07.8	07.9	07.9	07.9	07.9	08.1	13 44	11.8	5 14	06.4	5.4
09.1	08.9	08.3	07.8	07.5	07.6	07.7	07.8	07.9	07.9	14 06	09.8	8 00	05.8	4.0
09.5	08.9	08.1	08.0	07.9	07.9	07.7	07.5	07.4	08.2	15 00	10.0	9 28	06.6	3.4
08.0	08.6	08.4	08.0	07.9	07.8	07.7	07.9	07.9	07.8	17 00	08.6	10 22	06.8	1.8
08.6	08.8	08.5	08.4	08.2	07.9	08.0	08.0	07.9	07.5	7 00	08.7	10 06	04.9	3.8
08.4	08.9	08.8	08.2	08.1	08.3	08.1	08.0	08.1	07.6	17 00	08.9	10 00	05.9	3.0
08.1	08.7	08.7	08.7	08.6	08.6	08.6	08.6	08.8	08.3	14 00	08.9	9 36	06.9	2.0
07.8	08.2	07.9	08.0	08.0	07.9	08.3	08.4	08.4	08.2	12 00	08.9	16 00	07.8	1.1
07.7	08.0	08.8	08.4	08.2	08.1	08.2	08.0	08.0	08.4	12 00	10.0	16 00	07.7	2.3
06.7	07.6	08.1	08.0	07.9	07.9	07.9	08.3	08.1	08.1	12 00	09.9	15 00	06.6	3.3
07.3	07.7	08.5	08.3	08.1	08.0	07.9	07.9	08.0	08.4	12 00	11.0	7 52	07.1	3.9
07.2	07.6	08.7	08.0	07.9	06.9	07.8	07.7	08.2	08.5	11 54	12.6	7 05	06.4	6.2
08.3	08.7	06.9	07.9	07.9	07.7	07.9	08.0	08.8	08.4	11 52	12.0	8 18	05.8	6.2
09.1	08.0	08.2	08.0	07.8	07.9	07.2	08.9	08.6	08.0	13 00	10.9	8 04	03.9	7.0
10.1	10.0	08.6	07.5	07.9	07.9	07.9	08.1	08.1	08.4	13 00	11.9	8 00	03.8	8.1
(09.3)	09.7	08.9	08.9	08.6	08.2	08.3	08.2	08.3	07.9	14 00	09.6	8 30	04.6	5.0
10.0	09.9	08.9	08.9	08.3	08.2	08.3	08.1	08.1	08.3	14 46	11.0	8 24	05.0	6.0
08.9	09.8	09.9	09.0	08.9	08.9	08.6	08.9	08.5	08.4	16 00	08.9	9 16	06.9	2.0
07.9	08.9	09.9	09.7	08.9	08.9	08.7	08.3	08.4	08.3	18 00	09.9	5 49	07.3	2.6
08.2	08.4	08.4	08.1	08.0	07.8	07.8	08.0	08.0	08.1				4.3	
08.2	08.5	08.4	08.2	08.1	08.0	08.0	08.1	08.1	08.1				3.1	

MARCH, 1909.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	08.0	08.3	09.0	08.0	08.0	07.3	07.2	07.4	07.6	08.0	09.0	09.6	08.9	09.1	08.9
2	08.6	08.7	08.0	07.9	07.6	07.6	08.0	08.8	09.1	09.1	09.2	09.4	08.5	09.0	08.0
3	08.4	08.0	08.1	08.0	07.9	07.4	07.7	07.7	08.3	08.4	08.9	09.0	08.7	08.8	09.1
4	07.0	07.0	08.9	07.5	07.1	07.2	07.4	06.8	07.0	08.0	08.9	10.0	09.8	09.1	09.1
5	09.0	09.0	08.9	08.4	08.0	07.7	07.6	07.0	06.9	07.6	07.8	08.8	09.0	10.1	11.6
6	07.9	07.6	06.2	08.0	07.8	07.6	06.9	06.0	06.7	07.7	08.4	09.0	09.6	09.5	09.1
7	08.9	09.0	08.8	08.7	08.1	07.8	07.3	06.8	06.0	07.0	07.2	07.8	08.4	10.2	10.5
8	09.1	08.9	08.4	08.1	08.0	07.8	08.0	08.1	07.2	07.8	08.0	08.0	09.1	10.2	10.1
9*	08.8	08.7	08.8	08.5	08.1	07.7	07.0	06.0	05.9	06.7	07.9	08.2	08.8	09.1	09.5
10*	08.4	08.0	08.1	08.1	07.8	07.8	07.4	07.0	07.1	07.7	07.9	08.0	08.5	09.4	09.9
11*	08.0	08.0	08.1	08.1	08.8	08.0	08.0	08.0	07.8	07.8	08.0	08.3	08.8	09.8	10.2
12*	09.1	09.1	09.1	09.0	08.8	08.2	07.9	07.9	07.1	06.1	06.5	07.1	08.1	09.1	09.6
13*	08.0	08.1	08.4	08.8	08.6	08.4	08.2	08.1	07.8	07.5	08.1	08.7	09.2	09.3	09.3
14	09.2	09.0	09.2	09.0	08.4	08.1	08.1	07.4	06.3	06.0	06.0	07.1	08.1	09.2	09.5
15*	09.2	09.2	09.3	09.2	08.8	08.3	08.1	07.7	07.0	06.3	06.7	07.2	08.2	09.2	09.5
16*	09.0	09.0	09.2	08.8	08.7	08.1	08.1	07.3	07.2	07.6	08.0	08.2	09.2	10.2	10.5
17*	09.2	08.9	08.9	08.9	09.0	08.3	08.1	08.1	07.8	07.6	07.9	08.1	08.9	10.1	10.3
18	09.2	09.2	09.0	08.7	08.1	08.1	08.1	07.2	08.0	08.2	10.2	10.5	10.7	11.1	10.5
19	09.3	09.1	08.8	08.9	08.9	08.7	10.4	10.7	10.2	10.1	11.2	10.2	09.3	11.0	10.9
20	08.2	08.3	08.3	08.1	07.9	07.5	06.6	05.9	06.2	06.2	07.3	09.0	10.3	11.1	10.8
21	08.2	08.2	10.0	07.9	07.5	08.1	08.1	07.5	07.7	08.1	09.2	10.0	10.9	12.2	12.3
22	08.0	08.5	08.7	08.4	07.9	08.7	07.2	07.2	05.3	05.8	06.4	07.2	08.4	10.1	10.3
23	08.9	08.2	08.5	08.6	09.0	08.2	08.0	07.1	05.9	05.3	05.5	07.0	08.5	11.4	12.4
24*	09.0	09.0	08.9	09.2	09.1	08.4	07.6	06.2	05.1	04.2	05.2	07.2	09.2	11.4	12.0
25	09.1	09.0	09.2	08.7	08.2	08.3	08.3	07.7	06.5	06.0	05.7	07.3	10.0	12.6	14.1
26	09.1	09.0	08.9	08.3	08.2	08.2	07.6	06.3	05.1	05.3	06.1	08.4	10.6	11.3	12.1
27	08.3	08.5	08.9	08.5	07.9	07.5	07.2	06.3	06.4	07.3	08.0	08.4	11.2	13.9	14.8
28	08.5	09.9	10.1	08.5	07.6	10.6	10.3	08.8	07.2	07.3	08.7	09.2	09.5	11.4	13.2
29	05.4	07.8	07.3	07.8	09.3	11.3	08.9	08.2	10.7	08.9	07.9	08.0	08.2	09.1	10.0
30	09.1	09.2	09.0	09.1	08.8	08.6	08.2	07.2	06.5	06.8	07.4	08.5	09.9	11.0	11.0
31*	09.2	09.2	09.2	09.1	08.5	08.0	07.8	07.9	08.1	08.3	09.3	10.6	12.0	12.1	
Mean.....	08.6	08.6	08.7	08.5	08.3	08.2	07.9	07.4	07.1	07.2	07.8	08.5	09.3	10.4	10.7
Mean*....	08.8	08.7	08.8	08.8	08.7	08.2	07.8	07.4	07.1	07.0	07.4	08.0	09.0	10.0	10.3

APRIL, 1909.

2° WEST PLUS TABULAR MINUTES.

1	09.4	09.4	08.4	08.4	08.3	08.4	07.9	07.7	07.3	06.3	05.9	06.7	09.5	11.1	11.1
2	09.5	09.4	09.3	09.8	09.3	09.0	08.3	07.8	07.4	08.1	08.7	10.3	12.1	12.2	12.7
3*	09.4	09.4	09.3	09.3	09.2	08.7	07.8	07.4	07.5	08.4	09.3	09.9	10.5	11.8	12.0
4*	09.4	09.3	09.3	09.3	09.3	08.7	07.6	07.5	07.4	08.0	08.9	09.4	10.7	11.7	11.6
5	09.7	09.4	09.4	09.3	09.3	08.6	08.0	07.3	07.2	07.4	08.3	09.5	11.0	12.0	12.5
6*	09.7	09.5	09.4	09.5	09.3	09.2	07.9	06.8	06.1	06.3	07.6	10.1	12.0	13.4	13.3
7*	09.8	09.7	09.7	09.6	09.5	09.2	08.1	07.3	06.3	05.6	06.9	09.4	12.2	13.6	13.4
8*	09.9	09.6	09.8	09.3	09.3	09.1	07.8	06.4	06.1	06.3	07.6	10.0	11.7	13.0	13.4
9*	10.0	09.9	10.1	09.4	09.3	09.3	08.2	07.3	06.7	06.5	07.5	08.9	10.5	12.1	12.3
10	09.3	09.4	09.4	09.2	09.3	10.9	08.3	06.5	05.5	06.4	06.8	07.7	09.4	10.7	11.4
11	10.1	10.0	09.8	09.6	09.3	09.1	08.1	08.0	08.2	08.3	09.3	10.4	12.2	13.6	13.8
12	09.3	09.4	09.4	09.3	08.4	08.1	07.6	08.0	07.4	06.3	06.3	07.4	09.2	10.5	11.6
13	09.6	09.6	09.5	09.4	09.5	09.5	09.4	09.0	08.4	07.4	07.9	09.6	11.3	12.3	12.4
14*	09.6	09.5	09.6	09.6	09.4	09.7	09.4	09.4	08.8	08.4	08.5	09.8	11.6	12.1	12.4
15*	09.8	09.7	09.5	09.4	09.4	09.5	09.3	08.3	07.0	06.2	07.0	08.4	10.6	12.0	12.4
16	08.1	08.2	08.6	08.2	08.5	08.0	07.6	07.1	07.1	06.7	06.8	08.0	09.4	10.6	11.5
17	08.7	09.0	08.8	09.0	08.3	07.8	07.2	07.9	-----	-----	-----	-----	12.1	11.6	11.5
18	09.7	09.3	09.0	09.0	08.3	07.6	07.1	07.2	09.0	09.0	09.2	11.4	13.1	13.8	13.8
19	10.1	09.9	09.5	09.6	09.1	08.3	06.3	05.5	06.7	08.1	09.4	10.9	12.1	12.5	13.4
20	10.3	10.2	09.9	09.4	08.5	08.4	06.4	06.2	05.4	06.3	08.2	10.8	13.3	14.5	13.3
21*	10.5	10.4	10.3	09.9	09.5	09.3	06.4	05.4	06.3	07.9	09.2	09.4	11.7	13.4	13.5
22*	10.3	10.2	10.2	09.8	09.4	08.6	06.6	05.7	05.8	07.1	08.2	09.4	10.4	11.4	12.1
23	10.2	10.0	09.6	09.4	09.6	09.4	08.8	07.4	07.1	07.4	08.1	09.4	10.9	12.5	13.4
24	10.1	10.1	10.2	10.2	10.1	09.4	08.4	08.0	07.5	07.1	07.6	09.4	11.4	-----	
25	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
26	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
27	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
28	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
29	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
30	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Mean.....	09.7	09.6	09.5	09.4	09.2	08.9	07.9	07.2	07.0	07.2	08.0	09.4	11.2	12.3	12.5
Mean*....	09.8	09.7	09.7	09.5	09.4	09.1	07.9	07.2	06.8	07.1	08.1	09.5	11.2	12.4	12.6

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

MARCH, 1909.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
08.5	08.2	09.5	09.1	09.0	08.9	08.6	08.3	08.3	08.4	12 00	09.6	6 14	07.1	2.5
08.0	09.0	10.0	09.0	09.0	08.9	08.5	08.5	08.1	08.6	18 00	10.0	5 47	07.5	2.5
09.8	10.1	10.1	09.5	09.2	08.9	07.9	07.8	07.9	08.6	18 00	10.1	7 28	07.3	2.8
09.1	09.1	09.0	08.6	08.7	08.7	08.9	08.9	09.0	08.4	12 00	10.0	1 29	06.5	3.5
11.1	09.7	08.8	07.6	07.6	06.0	06.7	07.2	07.0	08.3	15 12	12.0	7 10	06.1	5.9
09.1	08.8	08.9	09.0	09.0	08.7	08.7	08.7	08.9	08.2	13 00	09.6	8 20	06.0	3.6
10.2	09.5	09.6	09.5	09.0	08.9	08.3	08.7	09.1	08.6	15 00	10.5	8 57	05.8	4.7
09.1	09.0	09.0	08.9	08.7	08.3	08.6	08.4	08.7	08.6	14 32	10.3	9 00	07.2	3.1
09.7	09.6	09.3	09.0	09.0	08.4	08.2	08.1	08.0	08.3	16 27	09.8	8 23	05.7	4.1
09.9	09.7	09.0	09.1	08.9	08.8	08.7	08.7	07.9	08.4	16 00	09.9	8 00	07.0	2.9
10.4	09.8	09.0	08.5	08.7	08.3	08.2	08.0	08.8	08.6	16 00	10.4	9 45	07.2	3.2
10.1	10.2	09.3	09.1	08.8	08.3	08.7	08.5	08.2	08.5	16 00	10.1	10 00	06.1	4.0
09.4	09.5	09.3	09.2	09.0	08.9	08.9	09.0	09.2	08.7	15 39	09.6	9 38	07.1	2.5
09.5	09.2	08.6	08.1	08.1	08.1	08.3	08.4	08.2	08.2	15 00	09.5	10 48	04.9	4.6
09.2	09.2	09.2	09.2	09.2	09.0	09.0	09.0	09.0	08.6	15 00	09.5	10 00	06.3	3.2
10.3	09.8	09.2	08.8	08.9	08.8	08.9	08.8	08.2	08.8	15 00	10.5	9 00	07.2	3.3
10.1	10.0	09.7	09.7	09.5	09.4	09.3	09.2	09.2	09.0	15 00	10.3	9 49	07.6	2.7
10.2	10.0	10.1	09.7	09.3	09.2	09.2	09.3	09.2	09.3	12 23	11.4	8 11	07.1	4.3
11.7	11.8	06.2	09.0	08.8	08.1	08.1	09.0	09.1	09.6	8 35	12.0	8 15	03.9	8.1
10.0	09.8	09.8	09.2	09.2	09.2	08.9	08.7	08.5	08.5	14 00	11.1	8 00	06.0	5.1
11.4	10.9	09.3	09.2	07.3	06.3	07.1	08.1	07.5	08.9	14 47	12.8	8 29	07.0	5.8
10.8	09.8	09.6	08.8	07.2	08.2	08.4	08.8	08.9	08.3	16 00	10.8	9 00	05.3	5.5
12.2	10.9	09.2	08.4	09.3	09.2	09.1	09.0	09.1	08.7	14 44	12.6	10 45	05.0	7.6
11.2	10.6	09.5	09.4	09.2	09.1	09.0	08.9	09.0	08.7	15 00	12.0	10 00	04.2	7.8
14.2	13.1	11.6	10.6	10.0	08.8	09.1	09.2	09.1	09.4	16 00	14.2	10 39	04.9	9.3
11.9	10.2	10.1	09.9	09.4	08.2	09.1	09.1	09.3	08.8	15 00	12.1	9 22	04.8	7.3
14.5	12.3	09.2	09.0	06.4	08.7	07.9	07.9	08.7	09.1	15 04	15.0	19 45	04.3	10.7
13.1	12.3	09.3	10.3	09.5	08.4	09.1	07.5	06.3	09.4	15 00	13.2	22 32	06.2	7.0
10.5	10.6	10.3	09.4	09.6	09.2	09.2	09.2	09.2	09.0	6 00	11.3	0 30	04.4	6.9
10.9	10.9	10.3	10.1	10.3	09.7	09.7	09.6	09.3	09.2	15 00	11.0	9 00	06.5	4.5
11.2	10.8	10.3	09.5	10.3	10.1	10.1	09.7	09.5	09.6	14 33	12.3	7 19	07.5	4.8
10.6	10.1	09.4	09.2	08.9	08.6	08.7	08.6	08.6	08.7					4.9
10.2	9.9	09.4	09.2	09.2	08.9	08.9	08.8	08.7	08.7					3.8

APRIL, 1909.

2° WEST PLUS TABULAR MINUTES.

10.4	10.2	09.8	09.8	09.4	09.5	09.8	09.9	09.4	08.9	14 27	11.6	8 10	05.7	5.9
12.2	11.1	10.3	09.9	10.0	09.8	09.6	09.3	09.4	09.8	15 00	12.7	8 17	07.3	5.4
11.4	10.9	10.2	09.4	09.7	09.6	09.6	09.6	09.6	09.6	15 00	12.0	7 48	07.0	5.0
11.4	11.0	10.3	10.2	10.2	10.1	09.9	09.8	09.6	09.6	14 00	11.7	8 31	07.3	4.4
12.3	11.5	10.5	10.3	09.9	09.6	09.3	09.5	09.7	09.6	15 00	12.5	9 25	06.9	5.6
12.3	10.8	09.9	09.8	09.7	09.7	09.7	09.8	09.8	09.6	14 00	13.4	9 00	06.1	7.3
12.1	10.8	10.3	10.1	09.6	09.4	09.5	09.6	09.9	09.6	14 31	13.7	10 00	05.6	8.1
13.1	11.8	10.5	10.2	10.1	10.0	09.9	09.7	10.0	09.8	15 00	13.4	8 21	05.8	7.6
11.8	11.3	10.7	10.3	10.3	10.2	10.1	09.3	09.3	09.6	15 00	12.3	10 00	06.5	5.8
11.8	12.1	11.3	10.5	10.3	10.3	10.0	09.9	10.0	09.4	16 23	12.1	9 00	05.5	6.6
12.9	11.5	10.4	10.4	10.4	10.4	09.9	09.2	09.3	10.2	14 36	14.0	8 00	08.0	6.0
11.4	11.4	10.7	10.4	09.9	10.2	10.1	09.7	09.6	09.2	15 00	11.6	10 42	06.1	5.5
12.0	11.4	10.4	10.3	10.2	09.8	09.8	10.0	09.7	09.9	15 00	12.4	10 20	07.2	5.2
11.7	10.7	10.4	10.4	10.4	10.3	09.6	09.4	09.9	10.0	15 00	12.4	10 00	08.4	4.0
12.2	11.4	10.6	10.8	10.8	10.4	10.4	10.3	09.3	09.8	15 00	12.4	10 00	06.2	6.2
11.4	10.0	09.8	08.2	09.3	10.0	09.7	10.6	09.0	08.8	15 00	11.5	7 33	06.3	5.2
10.1	09.5	09.7	08.0	08.8	09.1	09.7	09.8	09.8	09.2	15 00	11.6	7 00	07.2	3.1
10.3	09.6	09.4	10.1	09.8	09.1	09.6	09.8	09.8	09.5	14 00	12.6	7 00	07.1	5.5
12.9	11.4	10.4	09.6	09.7	09.8	10.1	10.3	10.3	09.6	15 00	13.9	7 31	05.3	8.6
11.7	10.4	09.8	09.7	10.2	10.3	10.2	10.4	09.4	14 00	14.5	9 00	05.4	9.1	20
12.4	11.2	10.2	10.1	10.2	10.4	10.1	10.2	10.2	09.9	15 00	13.5	8 00	05.4	8.1
11.8	11.1	10.5	10.5	10.4	10.3	10.2	10.1	10.3	09.6	15 00	12.1	8 00	05.7	6.4
12.8	11.4	10.6	10.4	10.4	10.2	10.1	09.8	10.0	10.0	15 00	13.4	8 35	06.8	6.6
11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	15 00	13.4	8 35	06.8	25
11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	15 00	13.4	8 35	06.8	26
11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	15 00	13.4	8 35	06.8	27
11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	15 00	13.4	8 35	06.8	28
11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	15 00	13.4	8 35	06.8	29
11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	15 00	13.4	8 35	06.8	30
11.9	11.1	10.3	10.1	10.0	10.0	09.9	09.8	09.8	09.7					6.3
12.0	11.1	10.4	10.2	10.1	10.1	09.9	09.8	09.8	09.7					6.3

MAY, 1909.

2° WEST PLUS TABULAR MINUTES.

Day	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Noon	13h	14h	15h
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7*	10.7	10.6	10.6	10.2	09.8	09.1	07.5	07.5	08.0	08.7	10.3	11.4	12.5	12.9	12.3
8*	10.7	10.7	10.5	10.4	10.3	09.5	07.8	07.6	07.7	08.4	10.1	10.5	11.5	13.4	13.3
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10*	10.6	10.6	10.6	10.5	09.4	08.8	07.4	07.4	08.3	09.7	10.8	10.6	10.8	11.4	12.2
11	10.5	12.1	10.4	10.5	10.5	09.4	07.6	07.4	07.4	08.4	09.4	10.5	11.4	12.2	12.2
12	10.5	10.6	10.5	09.4	10.0	09.3	07.7	07.4	07.4	08.4	10.0	11.6	12.7	13.4	13.4
13*	10.6	10.6	10.5	10.4	09.9	09.5	08.4	08.1	08.6	09.5	10.3	11.3	11.5	12.4	12.5
14	13.5	11.2	11.6	05.3	04.4	04.4	06.4	08.0	09.3	10.7	11.5	15.4	13.2	16.9	18.6
15	11.4	11.9	10.4	09.4	10.5	08.5	08.2	08.6	09.5	09.8	10.8	11.7	12.6	13.4	13.2
16	10.3	09.8	10.2	10.4	10.1	08.4	07.4	07.6	08.4	10.0	10.6	12.1	12.6	12.6	12.4
17*	11.3	10.6	10.5	10.3	10.5	09.2	07.7	07.6	10.1	12.6	14.5	14.6	14.4	13.5	13.5
18	10.4	10.4	08.3	09.3	09.8	09.5	07.3	08.4	07.6	09.2	11.3	12.7	13.5	14.1	15.2
19	11.8	12.1	12.3	12.4	12.4	10.6	09.5	06.1	06.2	07.0	08.3	09.4	11.6	12.5	12.6
20	11.1	11.0	10.9	10.6	10.3	09.7	08.8	08.5	09.1	09.7	11.4	12.4	13.6	14.6	13.9
21	10.8	10.7	10.6	10.5	10.0	08.7	07.2	05.7	06.0	06.9	08.2	09.3	10.1	11.3	12.2
22*	10.5	11.0	10.4	10.3	10.3	09.5	09.3	09.6	11.0	11.5	11.2	11.5	12.5	12.8	13.0
23*	10.6	10.5	10.5	10.5	10.4	09.5	09.6	09.7	10.7	10.8	11.5	11.7	12.2	12.5	12.5
24*	10.8	10.7	10.6	10.6	10.5	09.6	08.4	08.6	09.5	09.6	10.3	11.3	11.9	12.7	12.7
25	10.6	10.5	10.5	10.5	10.5	09.5	08.5	08.5	09.2	09.5	10.0	10.5	10.8	11.4	11.5
26	10.0	10.6	10.5	10.6	11.4	10.5	08.7	08.2	08.6	08.7	09.6	10.7	11.7	12.4	12.6
27	10.0	11.6	11.2	10.1	10.5	10.7	08.8	08.0	09.0	09.6	09.7	11.6	13.4	13.6	13.0
28	10.3	11.8	10.6	10.6	10.1	08.7	08.3	07.7	08.5	09.4	10.3	10.8	11.6	12.6	12.9
29*	10.9	10.7	10.6	10.6	10.5	09.5	08.7	09.3	09.6	10.5	10.9	11.6	12.5	12.7	12.6
30*	10.9	11.1	10.7	10.7	11.3	09.5	08.5	08.5	09.6	10.8	13.2	13.8	14.7	14.5	13.7
31	11.5	10.9	10.6	10.6	11.3	09.6	07.9	07.5	08.3	09.3	09.6	10.8	11.5	11.8	12.2
Mean.....	10.8	10.9	10.6	10.2	10.2	09.3	08.2	08.0	08.6	09.4	10.4	11.4	12.2	12.9	13.1
Mean*....	10.8	10.7	10.6	10.4	10.3	09.6	08.4	08.5	09.1	10.2	11.2	11.7	12.4	12.8	12.8

JUNE, 1909.

2° WEST PLUS TABULAR MINUTES.

1	11.4	10.9	10.8	10.8	10.8	09.9	09.2	08.8	10.7	12.5	11.7	12.8	13.2	13.6	12.7
2	11.3	11.1	10.9	10.7	10.7	10.4	08.4	07.7	07.8	08.5	08.6	09.4	10.8	11.6	12.2
3*	11.1	11.0	10.8	10.7	10.7	09.9	08.7	08.7	08.7	10.0	11.3	12.3	13.7	13.7	13.7
4*	11.0	11.0	10.8	10.7	10.7	09.7	08.7	07.8	08.5	09.6	10.6	12.4	12.8	13.7	14.0
5*	11.1	11.2	11.1	10.9	11.0	10.6	09.3	08.1	07.7	08.4	08.8	09.4	10.7	11.7	12.5
6	11.0	11.4	11.4	11.0	10.7	10.5	08.6	07.6	07.9	08.8	09.7	10.6	12.4	13.7	13.5
7	10.8	10.8	10.8	10.7	10.6	09.7	08.6	07.3	06.7	06.9	07.7	09.0	11.0	13.0	13.7
8*	11.3	11.6	11.5	11.6	11.0	09.8	08.7	08.5	08.8	09.8	10.7	11.8	12.1	12.7	12.8
9*	11.8	11.8	11.7	11.2	11.0	10.5	09.0	08.8	09.0	09.5	09.9	11.1	11.9	11.9	11.9
10*	11.5	11.5	11.5	10.8	10.7	10.0	09.9	09.9	10.6	10.6	09.8	10.6	11.0	11.9	12.4
11	11.6	11.1	11.6	11.2	10.9	10.5	09.3	09.0	10.2	10.7	10.7	11.7	13.1	13.8	13.9
12	11.1	10.8	10.8	10.2	09.9	09.4	08.4	07.8	08.1	08.8	09.8	11.8	13.0	14.0	13.8
13	11.2	11.0	10.9	10.9	11.0	09.9	08.9	08.2	08.6	09.1	10.3	11.7	13.3	14.0	14.9
14	11.6	11.7	11.7	11.1	10.9	10.6	09.9	08.9	08.7	09.2	09.9	10.2	12.5	13.9	13.3
15	11.0	11.0	10.9	10.8	09.9	09.2	07.9	07.8	10.5	10.7	10.7	11.9	12.9	12.9	12.6
16	11.0	10.9	10.8	10.1	09.9	08.8	07.7	07.6	08.6	09.7	10.9	12.9	15.0	15.7	15.0
17	10.9	10.8	10.8	10.8	10.7	09.5	08.1	07.9	07.6	08.9	09.6	10.9	12.3	13.8	14.1
18	11.3	11.3	11.3	11.0	10.9	09.3	08.4	07.9	08.9	09.4	11.0	12.7	13.6	14.0	13.9
19	11.7	11.3	11.5	11.3	10.8	09.2	08.9	08.0	08.2	09.3	10.6	12.2	14.3	14.5	13.6
20*	11.9	11.8	11.8	11.5	11.1	10.0	09.0	08.7	09.1	11.0	12.7	13.8	14.1	14.3	14.2
21	11.6	12.0	10.9	10.2	10.0	08.9	(07.5)	(07.0)	07.7	10.0	12.0	11.9	14.0	14.8	15.0
22	11.8	11.7	11.6	11.2	10.5	09.9	08.2	07.8	08.9	10.8	12.4	13.7	15.0	15.1	13.6
23	10.5	11.0	11.6	10.9	11.0	10.2	10.2	09.9	09.0	09.9	11.0	12.0	13.3	14.1	13.7
24	11.2	11.5	11.2	11.1	10.8	10.3	09.2	09.1	09.8	11.3	12.4	13.1	13.1	13.0	13.2
25*	12.2	12.1	12.1	11.7	11.1	10.9	10.1	09.4	09.4	09.9	10.7	12.1	13.1	14.0	13.7
26*	11.6	11.7	11.4	12.2	11.2	10.1	09.7	09.1	09.8	10.3	11.5	12.9	13.5	13.8	13.5
27*	11.7	11.5	11.6	11.2	10.5	09.2	09.0	09.5	10.1	11.1	12.2	12.8	13.2	12.6	12.6
28	11.8	11.5	11.0	11.0	10.1	09.6	07.8	07.8	09.7	10.1	10.3	11.9	13.1	13.1	14.1
29	12.3	11.2	10.3	11.9	11.8	10.5	09.9	10.0	09.4	10.1	11.1	12.3	12.9	13.1	12.9
30	12.0	11.6	11.8	12.2	11.7	10.8	10.1	09.8	10.1	10.9	11.7	12.9	13.9	14.2	14.3
Mean.....	11.4	11.3	11.2	11.1	10.8	10.0	08.9	08.5	08.9	09.8	10.6	11.8	12.9	13.6	13.5
Mean*....	11.5	11.5	11.4	11.2	11.0	10.2	09.2	08.8	09.1	09.9	10.7	11.9	12.6	13.1	13.1

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

MAY, 1909.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day			
										h	m	'	h	m	'	
																1
																2
																3
																4
																5
11.8	11.5	10.7	10.7	10.8	11.0	11.0	10.8	10.7	10.4	14	16	13.2	8	00	07.5	6
11.3	10.6	10.5	10.6	10.8	10.7	10.7	10.6	10.5	10.4	14	17	13.5	7	43	07.3	7
12.5	11.7	11.5	11.2	11.0	11.0	11.1	(11.0)	(11.0)	10.6	14	22	12.5	7	15	07.0	8
																9
12.5	12.2	11.5	11.3	11.4	10.9	10.6	10.5	10.6	10.4	16	00	12.5	7	15	07.0	10
12.5	12.1	11.5	10.6	09.7	10.5	10.4	10.2	10.7	10.1	16	00	12.5	7	27	06.6	11
12.5	11.7	11.3	10.8	11.2	11.2	10.8	10.7	10.6	10.3	15	00	13.4	9	44	06.5	12
12.4	12.3	12.2	11.6	11.6	11.4	11.1	10.8	11.1	10.8	15	00	12.5	7	54	07.7	13
15.6	13.2	13.7	13.3	15.5	10.7	08.6	10.5	09.9	11.3	14	36	19.5	6	00	04.4	14
12.2	11.0	10.6	10.6	11.3	10.5	10.6	11.1	10.4	10.8	14	22	14.0	6	51	07.5	15
11.0	10.5	10.8	11.1	10.8	11.2	11.1	11.1	11.3	10.5	13	35	12.7	7	21	07.3	16
12.3	11.4	11.2	11.1	10.7	11.1	10.8	10.5	10.6	11.3	13	21	14.7	7	24	07.4	17
14.5	11.5	08.7	08.2	07.1	06.7	08.0	08.4	08.4	09.9	15	11	15.6	19	45	05.7	18
11.5	11.1	10.6	10.8	10.8	10.6	10.9	10.8	10.8	10.5	14	31	12.7	9	09	05.8	19
13.3	12.1	11.4	11.5	11.4	11.3	11.2	10.7	10.7	11.2	14	00	14.6	7	38	08.4	20
12.4	11.9	11.5	11.4	11.5	11.3	10.5	10.8	10.7	10.0	15	29	12.5	8	35	05.4	21
12.4	12.2	12.0	11.6	11.5	11.4	11.2	11.0	10.8	11.2	15	00	13.0	7	00	09.3	22
12.3	11.7	11.7	11.7	11.6	11.0	10.8	10.6	10.8	11.0	15	00	12.5	7	34	09.2	23
12.8	12.4	12.1	11.6	11.5	11.4	10.9	10.8	10.8	10.9	16	00	12.8	9	00	08.6	24
11.7	11.7	11.5	11.5	11.5	12.3	11.5	10.9	10.5	10.6	21	00	12.3	7	00	08.5	25
11.6	11.6	11.6	12.0	11.5	11.4	11.2	10.8	10.6	10.7	15	00	12.6	8	00	08.2	26
12.6	11.8	11.6	11.6	11.6	10.9	10.6	10.3	10.6	10.9	14	00	13.6	8	00	08.0	27
12.4	11.5	11.2	11.6	11.6	11.5	11.3	10.8	10.7	10.7	15	00	12.9	8	33	07.5	28
11.7	11.4	11.5	11.8	11.7	10.5	11.4	11.3	11.2	11.0	14	00	12.7	7	18	08.7	29
12.6	11.6	11.5	11.7	11.7	11.6	11.6	11.6	11.6	11.5	13	00	14.7	7	00	08.5	30
11.7	11.4	11.7	11.7	11.8	11.5	11.4	11.4	11.4	10.7	15	00	12.2	8	06	07.3	31
12.4	11.7	11.4	11.3	11.3	11.0	10.8	10.7	10.7	10.7							5.8
12.3	11.8	11.6	11.4	11.4	11.1	11.0	10.9	10.9	10.9							5.1

JUNE, 1909.

2° WEST PLUS TABULAR MINUTES.

11.8	11.4	10.8	10.9	10.7	11.5	11.5	10.9	11.3	11.3	14	00	13.6	7	49	08.4	1
12.0	11.8	11.7	11.5	11.6	11.7	11.7	11.5	11.4	10.6	15	00	12.2	8	00	07.7	2
12.7	12.7	12.7	11.9	11.8	11.7	11.5	11.5	11.4	11.4	15	00	13.7	8	25	08.3	3
13.7	12.7	12.5	11.8	11.6	11.5	10.6	10.4	10.9	11.2	13	00	14.0	8	00	07.8	4
11.9	11.7	11.7	11.7	11.7	11.7	11.5	11.3	11.1	10.7	15	00	12.5	8	42	07.6	5
12.6	11.4	10.8	11.7	11.5	11.5	11.4	11.1	10.6	10.9	14	00	13.7	8	12	07.4	6
13.1	12.3	12.0	11.9	11.8	11.4	11.7	10.9	11.0	10.6	15	00	13.7	8	54	06.7	7
12.8	12.1	12.0	11.9	11.9	11.9	11.8	11.8	11.8	11.3	15	25	13.0	7	25	08.2	8
11.7	11.2	11.7	12.0	11.9	11.9	11.9	11.8	11.6	11.1	19	00	12.0	8	00	08.8	9
12.0	12.0	12.2	12.2	12.2	11.9	11.9	11.8	11.8	11.3	15	00	12.4	6	07	09.7	10
13.5	12.8	12.3	11.7	11.7	11.6	11.2	11.4	11.4	11.5	15	00	13.9	8	00	09.0	11
13.8	12.9	12.7	12.5	12.2	12.1	11.9	11.7	11.2	14	00	14.0	8	00	07.8	12	
14.6	13.9	13.1	12.8	12.6	11.7	11.9	11.7	11.8	11.6	15	30	15.0	8	00	08.1	13
13.4	13.3	12.3	12.2	12.2	12.3	12.5	12.1	11.9	11.8	14	00	13.9	8	19	08.2	5.7
11.9	12.0	12.6	13.0	12.3	12.2	12.0	11.3	12.0	11.2	13	46	13.1	7	30	07.1	15
14.0	12.8	11.9	12.6	11.9	11.9	11.8	11.1	10.8	11.4	14	00	15.7	7	31	06.9	8.8
14.1	13.8	12.9	12.8	12.0	12.1	11.2	10.9	10.9	11.1	15	36	14.4	7	49	07.4	7.0
13.0	12.7	12.1	12.0	12.0	11.9	11.8	11.7	11.4	14	00	14.0	8	00	07.9	6.1	
13.2	12.8	12.2	11.9	12.0	11.8	11.7	11.8	11.7	11.4	13	33	14.7	8	00	08.0	6.7
13.7	13.0	12.2	12.0	11.9	11.8	11.7	11.8	11.9	11.9	13	36	14.6	8	00	08.7	20
14.3	13.4	12.8	12.5	12.5	12.1	12.0	12.0	11.9	11.5	15	07	15.2	8	20	06.7	8.5
12.3	12.1	12.1	12.0	12.1	11.4	09.8	10.1	10.9	11.5	13	23	15.6	7	41	07.4	22
13.1	12.3	12.1	12.7	12.1	12.1	11.3	10.8	10.8	11.5	14	00	14.1	9	00	09.0	5.1
12.8	12.4	12.1	12.1	12.1	12.1	11.9	11.9	11.8	11.6	15	00	13.2	7	35	09.0	24
13.0	12.2	11.8	12.2	12.2	12.2	12.0	11.7	11.3	11.7	14	00	14.0	8	00	09.4	25
13.1	13.1	13.0	12.4	12.1	11.9	12.2	12.1	12.1	11.8	14	00	13.8	7	31	08.8	5.0
12.2	12.2	12.2	12.3	12.4	12.3	12.3	12.2	12.1	11.6	14	00	13.2	8	00	09.0	4.2
13.9	13.2	13.0	12.0	12.2	11.2	07.1	10.8	11.0	11.1	15	15	14.3	7	18	06.9	7.4
12.6	12.5	12.2	12.2	12.2	11.6	11.8	11.8	11.6	11.6	14	00	13.1	8	45	09.1	4.0
13.9	13.1	12.2	12.0	12.2	12.1	12.2	12.1	11.9	12.1	14	33	14.5	7	33	09.2	5.3
13.0	12.5	12.2	12.1	12.0	11.8	11.5	11.5	11.4	11.4						5.6	
12.7	12.3	12.2	12.0	12.0	11.9	11.8	11.6	11.6	11.4						4.7	

JULY, 1909.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	11.8	11.9	11.9	12.4	11.9	11.1	09.5	09.0	09.8	11.2	12.8	13.7	13.3	13.2	12.8
2	12.2	11.6	11.7	11.8	11.2	11.3	11.1	09.9	10.5	11.2	12.2	13.8	14.8	14.9	14.0
3	12.1	13.2	13.2	12.2	11.4	10.2	09.9	10.3	10.2	11.0	11.5	12.8	13.3	13.3	13.3
4	11.8	12.1	11.9	12.0	11.1	11.0	10.0	09.5	10.2	10.2	10.5	11.1	12.2	12.7	13.1
5	12.2	12.2	12.2	12.0	11.6	10.6	09.4	09.1	08.9	09.3	10.5	12.1	13.3	14.3	14.2
6*	12.2	12.2	12.1	12.0	11.4	11.2	10.0	09.1	08.8	09.8	11.2	12.5	14.1	14.3	14.2
7*	12.4	12.4	12.4	12.1	11.6	11.1	09.6	08.4	08.3	08.7	09.8	11.4	13.2	14.2	14.4
8	12.1	12.0	12.2	12.0	11.7	12.8	13.1	11.6	11.7	11.9	12.0	12.6	13.3	14.3	14.4
9	11.6	12.1	12.0	12.2	12.0	11.3	10.4	09.1	08.6	09.6	10.2	11.6	12.9	13.3	13.0
10*	12.4	12.3	12.1	11.7	11.5	11.1	10.3	09.9	10.3	11.3	12.3	13.0	14.4	14.6	14.3
11*	12.2	12.0	11.8	11.9	11.8	11.1	10.3	10.8	11.3	11.3	11.9	14.0	14.0	13.9	
12	11.3	11.3	12.0	11.3	10.5	10.2	10.2	10.2	11.3	12.0	12.9	15.0	16.4	15.6	14.5
13	11.2	12.4	12.1	11.2	10.4	09.5	09.7	08.3	11.2	12.4	12.8	13.3	13.4	14.0	
14	12.1	12.5	12.1	11.6	11.4	10.4	09.7	09.6	11.3	11.9	13.5	15.6	16.5	16.1	15.5
15	11.6	11.6	11.6	12.6	11.4	10.1	09.3	09.4	10.4	11.3	12.6	14.1	14.9	15.3	14.5
16*	12.3	12.2	12.2	11.7	11.8	10.3	08.2	07.4	08.9	09.4	10.2	10.9	12.1	13.8	13.5
17*	12.5	12.4	12.0	11.7	11.3	10.4	09.1	09.3	10.4	11.6	13.4	13.8	14.5	15.4	
18*	12.5	12.5	12.3	12.0	11.4	11.2	09.1	08.3	09.2	10.0	11.4	12.5	13.5	14.5	14.6
19*	12.6	12.5	12.4	11.9	11.6	10.7	09.9	09.6	10.3	11.3	11.1	10.7	10.5	11.4	11.7
20*	12.7	12.6	12.5	12.9	12.4	11.1	09.6	10.0	11.2	11.1	12.2	11.8	12.2	13.6	13.8
21	12.4	12.4	12.3	12.3	12.3	10.6	08.6	07.5	08.3	11.5	12.8	13.6	14.9	15.3	15.5
22	12.7	11.8	12.4	12.0	11.5	11.3	09.7	08.9	08.1	09.3	09.9	09.7	10.3	12.5	13.5
23	10.3	10.7	10.6	14.0	11.4	11.0	11.5	10.4	10.0	10.9	12.5	13.6	14.1	14.6	14.3
24	11.4	11.7	12.6	13.2	12.4	11.5	09.5	08.4	08.3	09.5	10.5	11.7	13.3	14.6	14.7
25	13.1	12.7	12.7	12.7	12.3	11.5	09.6	09.2	09.8	10.5	11.4	13.2	14.2	15.0	15.6
26	12.4	11.8	11.6	12.5	11.9	11.3	10.5	10.2	10.6	10.8	11.0	12.4	13.5	14.7	14.7
27	12.6	12.6	13.1	12.7	12.2	11.7	09.8	09.5	10.5	11.0	10.5	12.2	12.9	13.9	14.6
28	12.9	12.8	12.6	12.5	11.7	10.9	09.7	10.6	11.6	13.2	13.6	13.8	13.6	13.8	
29	12.9	12.6	14.1	13.2	12.4	11.7	10.2	08.6	10.7	11.3	12.3	13.5	13.9	14.3	14.8
30	14.2	13.2	12.6	12.8	12.1	10.6	09.1	09.4	11.5	12.5	14.4	15.3	15.7	16.6	16.5
31*	13.0	13.0	12.7	12.7	12.4	10.7	08.6	08.3	10.6	11.9	13.3	13.7	13.3	12.9	13.3
Mean.....	12.2	12.2	12.3	12.3	11.7	11.0	09.8	09.3	10.1	10.9	11.8	12.8	13.6	14.2	14.2
Mean*....	12.5	12.4	12.2	12.1	11.7	10.9	09.5	09.1	09.9	10.6	11.6	12.2	13.2	13.9	13.9

AUGUST, 1909.

2° WEST PLUS TABULAR MINUTES.

1	13.1	13.6	13.0	12.5	12.7	10.6	07.9	07.6	10.2	13.3	14.9	15.8	15.8	14.8	13.7
2	13.9	12.8	12.6	11.4	11.2	09.2	07.5	07.6	09.2	10.7	12.4	13.2	14.4	14.4	13.9
3	12.8	12.9	13.8	13.5	12.6	11.9	10.4	09.3	10.7	12.6	14.6	15.6	16.7	17.0	16.0
4	13.0	12.8	12.8	12.4	11.7	10.7	08.8	08.5	08.9	10.6	12.4	13.3	14.3	15.6	15.8
5*	12.8	12.8	12.6	12.4	13.4	11.0	09.6	08.9	09.6	09.7	09.8	10.7	12.6	14.5	15.6
6*	13.0	12.8	13.3	12.8	12.6	11.2	08.9	07.6	08.5	10.7	12.7	14.0	14.7	13.9	13.8
7	12.8	12.9	13.0	12.8	12.8	11.2	09.3	08.8	09.1	09.6	10.8	13.0	13.8	14.8	
8	12.9	12.8	12.8	12.7	12.3	11.7	10.1	11.3	13.2	14.1	14.8	14.9	15.0	15.3	15.4
9	11.6	12.8	12.3	10.8	11.3	10.3	10.7	11.2	11.3	11.9	12.3	11.9	12.7	13.7	14.7
10	12.8	12.8	12.3	12.2	11.8	10.3	09.5	11.5	13.4	13.7	13.7	13.0	12.5	12.8	13.1
11	12.8	12.7	12.8	11.8	11.8	10.3	09.6	09.8	11.1	12.9	14.8	15.9	16.7	16.7	16.1
12	13.2	12.9	12.5	12.1	11.6	09.9	08.1	09.1	10.9	12.0	12.9	13.4	13.9	14.1	13.9
13*	12.9	12.8	12.3	11.9	11.6	09.9	08.5	10.1	11.9	12.9	14.1	14.9	15.0	15.1	15.2
14*	12.9	12.9	12.5	12.3	11.9	10.8	09.1	09.7	11.4	12.9	13.9	13.8	14.0	13.9	13.6
15*	12.2	12.9	12.8	12.0	11.7	10.5	08.4	08.7	09.9	11.3	12.8	13.8	13.4	13.9	13.9
16*	13.0	12.9	12.7	12.1	11.8	10.9	09.1	09.6	11.0	13.7	16.0	16.2	16.3	16.0	14.7
17*	12.9	12.9	12.7	12.7	12.0	10.9	09.5	10.7	11.9	13.2	14.0	14.8	14.8		
18	13.0	13.0	12.8	12.8	12.3	11.9	10.0	07.6	08.2	10.0	13.0	14.1	14.1	14.9	15.3
19	12.3	14.0	12.8	12.8	12.0	10.8	08.8	10.0	10.1	11.2	12.9	14.2	15.2	16.2	15.8
20	12.8	15.2	13.4	12.9	12.5	11.7	08.6	08.0	09.5	11.2	12.5	14.2	15.0	14.8	14.2
21*	13.6	13.6	13.7	13.2	12.4	11.0	09.1	08.5	09.7	11.9	16.1	16.0	16.8	16.6	16.1
22	13.0	14.0	13.5	13.1	13.1	11.9	09.2	09.0	10.7	12.6	13.1	14.1	15.3	16.1	15.8
23*	13.4	13.4	13.6	13.0	12.3	11.0	07.9	07.9	14.6	12.5	14.2	15.0	15.4	15.8	15.0
24*	13.2	13.3	13.2	13.4	12.1	11.1	10.1	11.0	12.4	14.4	16.0	17.0	17.1	17.0	16.2
25	12.7	12.9	12.9	12.5	12.0	11.2	08.8	09.7	11.0	13.0	13.3	14.3	15.2	16.2	15.5
26	13.2	13.7	13.2	12.1	12.0	11.1	09.4	10.0	12.7	15.2	17.2	18.2	17.3	17.1	16.0
27	13.6	13.2	12.3	13.2	12.2	10.7	10.2	09.1	10.9	12.9	14.4	15.5	16.2	16.1	14.8
28	13.2	13.2	13.1	12.4	11.9	11.1	09.3	09.6	11.3	13.1	14.1	14.9	15.2	15.0	14.2
29	13.0	14.3	11.1	11.1	12.0	10.3	11.1	11.6	12.4	13.5	15.1	16.2	16.5	15.9	16.0
30	15.9	13.5	12.3	11.8	11.3	12.3	11.7	12.0	13.3	13.3	14.2	15.2	15.7	15.3	15.2
31	14.1	14.0	14.3	13.1	11.7	10.2	08.2	09.1	10.9	12.9	15.3	16.6	17.1	16.3	15.4
Mean.....	13.1	13.2	12.9	12.4	12.1	10.8	09.2	09.5	11.0	12.5	13.8	14.6	15.1	15.3	15.0
Mean*....	13.0	13.0	12.9	12.6	12.2	10.8	09.0	09.3	11.1	12.3	13.9	14.5	15.0	15.2	14.8

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

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JULY, 1909

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
12.2	12.3	13.2	13.1	12.8	12.5	12.3	12.0	12.1	12.0	12 25	13.9	7 40	08.7	5.2 1
13.0	12.8	12.7	13.0	12.3	12.5	12.3	12.3	12.3	12.3	13 34	15.2	8 00	09.9	5.3 2
13.2	12.7	12.4	12.5	12.8	12.4	12.3	12.3	12.3	12.1	13 40	13.7	7 25	09.2	4.5 3
13.2	12.5	12.3	12.3	12.3	12.5	12.3	12.2	12.3	11.7	15 25	13.3	7 45	09.7	3.6 4
13.6	13.2	12.5	12.3	12.3	12.3	12.3	12.3	12.2	11.9	14 00	14.3	8 33	08.7	5.6 5
13.3	12.7	12.3	12.3	12.4	12.5	12.5	12.4	12.4	12.0	14 00	14.3	9 00	08.8	5.5 6
14.4	14.2	13.6	13.2	13.1	12.7	12.3	12.0	12.1	12.0	15 39	14.7	9 00	08.3	6.4 7
14.0	13.4	13.2	13.1	13.0	12.5	11.4	11.3	11.2	12.5	14 22	14.8	24 00	11.1	3.7 8
12.9	12.9	13.0	13.0	12.8	12.8	12.6	12.5	12.4	11.9	13 24	13.4	8 34	08.5	4.9 9
13.2	12.6	12.9	13.0	13.1	12.9	12.6	12.2	12.1	12.3	13 45	14.8	7 57	09.8	5.0 10
14.4	14.1	14.3	14.3	13.5	13.3	12.4	12.4	11.5	12.5	16 00	14.4	7 00	10.3	4.1 11
13.3	12.8	12.0	12.2	12.0	11.3	11.5	11.1	11.7	12.2	13 00	16.4	7 42	09.5	6.9 12
13.3	13.2	13.3	13.5	13.5	12.2	12.2	12.5	12.1	12.1	15 00	14.0	7 16	07.2	6.8 13
13.5	12.7	11.7	12.8	13.1	12.5	12.5	11.6	12.7	12.6	13 18	16.6	7 21	09.4	7.2 14
13.4	12.5	12.4	12.5	12.5	12.4	12.4	11.8	12.3	12.2	14 00	15.3	6 24	09.0	6.3 15
13.0	12.5	13.0	12.7	13.0	12.6	12.6	12.7	12.5	11.6	14 00	13.8	8 00	07.4	6.4 16
14.5	13.8	12.8	12.5	12.5	12.5	12.5	12.5	12.5	12.5	14 52	15.5	7 25	08.5	7.0 17
13.6	12.3	12.1	12.8	12.9	12.8	12.6	12.5	12.4	12.0	14 29	14.7	8 00	08.3	6.4 18
12.3	12.8	13.2	13.3	13.2	12.8	12.7	12.6	12.8	11.8	18 35	13.4	7 18	09.3	4.1 19
13.7	13.5	13.3	13.6	13.5	13.4	13.1	13.0	12.6	12.5	15 28	14.0	7 00	09.6	4.4 20
14.5	13.7	13.6	13.3	13.4	13.4	12.9	12.7	11.4	12.5	15 00	15.5	8 14	07.3	8.2 21
13.5	13.5	13.4	13.2	12.7	12.4	11.2	11.0	10.8	11.5	15 00	13.5	8 53	07.7	5.8 22
14.3	13.8	13.9	13.4	13.1	12.3	11.6	09.7	09.1	12.1	13 33	14.8	8 39	09.5	5.3 23
14.6	13.9	12.8	12.7	12.6	12.6	12.6	12.6	12.6	12.1	15 00	14.7	8 29	07.5	7.2 24
14.7	14.2	14.2	13.7	13.5	13.4	13.3	12.8	12.7	12.8	15 00	15.6	7 35	09.0	6.6 25
14.1	13.6	13.4	13.2	13.3	13.3	13.0	12.8	12.8	12.5	14 00	14.7	7 37	10.0	4.7 26
14.6	13.6	12.9	13.3	13.3	12.9	13.0	13.2	13.3	12.5	15 00	14.6	8 00	09.5	5.1 27
13.6	13.4	12.8	13.3	13.3	13.2	10.8	12.6	12.6	12.6	15 00	14.4	7 09	09.5	4.9 28
14.5	13.4	12.7	12.8	13.2	12.7	13.0	13.2	13.0	12.7	15 00	14.8	8 09	08.4	6.4 29
14.3	12.8	12.6	12.8	13.1	13.2	12.9	13.0	13.0	13.1	14 00	16.6	7 28	08.6	8.0 30
13.3	12.7	12.6	12.7	12.9	13.0	12.8	12.6	13.0	12.3	12 00	13.7	7 31	07.7	6.0 31
13.7	13.2	12.9	13.0	12.9	12.7	12.4	12.3	12.2	12.2					5.7
13.6	13.1	13.0	13.0	13.0	12.8	12.6	12.5	12.4	12.2					5.5

AUGUST, 1909.

2° WEST PLUS TABULAR MINUTES.

13.5	12.9	12.8	12.9	12.8	12.5	12.8	12.8	12.8	12.7	12 32	16.0	7 27	07.4	8.6 1
13.7	13.6	12.4	13.1	12.6	10.8	12.2	13.3	12.8	12.0	13 35	14.7	7 09	06.8	7.9 2
14.9	13.8	13.2	12.8	12.8	11.8	11.7	12.9	13.1	13.2	14 00	17.0	7 32	08.5	8.5 3
14.8	12.8	12.5	12.5	12.4	12.4	11.9	12.5	12.5	12.3	15 00	15.8	7 47	07.9	7.9 4
15.1	13.9	13.2	12.8	12.7	12.7	12.7	12.7	12.7	12.3	15 00	15.6	7 39	08.5	7.1 5
13.5	12.9	12.8	12.9	12.9	12.8	12.8	12.7	12.8	12.4	12 40	14.9	8 00	07.6	7.3 6
14.8	13.8	13.4	13.2	12.8	12.8	12.9	13.0	12.5	15 00	14.8	7 42	08.5	6.3 7	
15.3	14.8	13.8	13.8	13.8	13.8	13.3	12.3	10.8	13.4	14 15	15.6	7 00	10.1	5.5 8
15.0	14.5	13.8	13.8	12.8	12.8	12.7	13.0	12.9	12.5	16 00	15.0	6 33	09.8	5.2 9
13.8	14.2	14.2	13.8	12.8	13.7	13.1	12.8	12.3	12.8	16 00	13.8	7 00	09.5	4.3 10
14.8	14.4	13.8	13.3	13.4	13.5	13.4	13.3	13.2	13.3	13 06	16.9	6 34	08.7	8.2 11
13.3	12.9	12.9	13.2	13.4	13.6	13.1	12.0	12.7	12.4	13 22	14.3	7 13	07.7	6.6 12
14.8	13.9	13.5	12.1	13.1	13.4	12.8	13.0	13.1	12.9	15 00	15.2	7 00	08.4	6.8 13
13.3	12.9	12.9	13.1	13.1	13.5	13.3	13.3	13.6	13.6	13 00	14.0	7 16	08.6	5.4 14
13.1	12.9	13.0	13.4	13.3	13.4	13.1	13.0	12.4	14 00	13.9	7 23	08.1	5.8 15	
13.4	13.1	13.3	13.5	13.3	13.4	13.3	13.3	13.8	13.2	13 00	16.3	7 17	08.9	7.4 16
13.9	13.9	14.1	13.9	13.8	13.7	13.4	13.3	13.2	13.1	14 00	14.8	7 08	09.3	5.5 17
14.8	14.0	13.8	13.7	12.0	12.8	12.8	13.1	13.0	12.7	14 00	15.5	7 21	06.6	8.9 18
15.3	14.9	14.0	13.4	13.4	13.3	13.4	13.2	13.3	13.1	14 00	16.2	6 28	08.5	7.7 19
13.9	13.6	13.7	13.5	13.7	13.6	13.5	13.4	12.9	13 00	15.0	7 14	07.9	7.1 20	
15.1	14.1	14.0	13.9	14.0	13.4	13.3	13.0	13.1	13.4	13 00	16.8	7 49	08.2	8.6 21
14.8	13.7	13.2	12.8	12.4	12.8	12.8	12.8	13.1	13.0	14 00	16.1	8 00	09.0	7.1 22
13.7	12.9	13.1	13.1	13.4	13.5	13.4	13.5	13.1	13.1	13 21	16.1	7 38	07.6	8.5 23
15.1	14.0	13.5	13.2	13.2	13.2	12.6	12.3	13.2	13.7	13 39	17.2	7 00	10.1	7.1 24
14.9	13.6	13.2	13.7	14.0	14.0	12.5	13.2	12.7	13.0	14 00	16.2	7 00	08.8	7.4 25
14.3	13.5	13.5	13.4	13.9	14.0	12.2	13.3	13.3	13.7	12 00	18.2	7 26	09.1	9.1 26
14.0	13.2	13.4	13.6	13.2	13.4	13.5	13.9	13.5	13.2	13 00	16.2	7 56	09.0	7.2 27
14.1	14.1	14.0	09.7	12.3	13.2	13.4	11.8	12.2	13.2	13 00	15.2	19 09	09.0	6.2 28
15.2	13.5	13.0	12.2	12.5	13.5	13.6	13.3	13.2	12.4	12 45	17.0	6 19	10.1	6.9 29
14.8	13.9	13.7	13.2	13.2	13.5	12.6	12.4	13.9	13.5	12 26	16.0	7 11	10.7	5.3 30
15.0	13.7	13.6	14.3	14.0	11.9	12.7	13.3	13.3	13.4	13 11	17.1	6 52	08.0	9.1 31
14.4	13.7	13.4	13.2	13.1	13.1	13.0	13.0	13.0	12.9					7.1
14.1	13.4	13.3	13.2	13.3	13.3	13.1	13.0	13.2	12.9					7.0

SEPTEMBER, 1909.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	13.3	13.4	13.9	12.8	11.8	09.9	07.4	08.2	09.4	12.1	14.3	16.3	16.4	16.1	15.2
2	13.4	13.3	13.3	13.3	12.4	11.0	08.5	08.6	10.1	11.7	13.7	15.3	16.2	16.3	15.6
3	13.9	13.9	12.7	12.5	12.3	13.2	13.3	11.9	11.4	13.2	16.3	17.2	17.0	16.3	16.8
4	12.3	12.3	13.3	13.2	11.2	10.8	09.0	08.1	08.1	09.9	11.0	12.3	14.0	15.4	15.7
5	13.4	13.1	13.2	12.7	12.3	11.3	09.7	10.3	10.1	10.6	11.3	13.0	14.5	15.5	16.4
6	13.4	13.4	12.8	12.9	12.4	11.4	10.0	09.3	09.1	09.6	10.3	12.3	14.1	14.7	15.4
7	13.0	13.4	12.7	12.8	12.3	11.9	11.3	10.4	10.2	10.3	11.0	12.1	14.3	14.7	14.9
8	13.4	13.7	13.9	12.3	12.3	12.9	11.7	12.6	13.5	14.4	15.2	15.0	15.4	14.7	14.3
9	13.8	13.4	12.8	12.3	12.4	11.2	(11.2)	(11.3)	11.3	12.5	13.9	15.4	15.9	15.4	15.4
10*	13.5	13.4	13.1	12.8	12.6	12.3	11.4	12.5	14.4	15.1	16.1	16.2	15.4	15.4	15.4
11*	13.6	13.5	13.5	13.2	13.2	12.4	11.0	10.8	11.6	13.3	14.8	15.5	15.4	14.6	14.1
12*	13.9	13.8	13.7	13.5	13.4	12.4	10.8	10.4	12.0	13.9	15.6	16.8	16.8	16.7	15.4
13*	13.8	13.6	13.5	13.4	13.2	11.9	10.2	10.0	11.5	13.4	15.6	16.6	17.5	16.6	15.4
14	14.0	13.9	13.5	12.4	11.8	11.4	09.6	09.4	11.2	12.5	14.6	15.9	15.8	15.3	14.4
15	14.3	13.4	13.3	13.2	12.4	12.1	10.3	09.4	10.3	12.5	14.3	15.4	15.8	15.2	14.2
16*	14.0	14.4	13.5	13.3	13.4	12.9	11.4	11.4	12.3	13.2	14.6	16.5	17.4	17.2	16.5
17*	13.7	13.7	13.1	13.3	13.1	12.5	11.4	10.5	10.4	11.5	13.7	15.6	16.7	17.0	15.9
18*	14.0	13.9	13.7	13.6	13.2	12.6	12.0	11.6	12.5	14.1	15.7	16.6	16.9	16.3	16.3
19*	14.3	14.2	14.1	13.8	13.6	12.7	11.8	10.9	10.4	11.5	12.7	14.1	14.7	15.2	15.1
20*	14.2	14.2	13.8	13.7	13.4	12.8	12.2	11.1	11.2	12.2	13.5	14.8	16.2	16.9	16.7
21	14.0	13.8	13.5	13.2	13.1	12.5	11.6	10.0	09.5	13.5	15.5	15.5	16.6	17.0	16.6
22	13.7	13.6	13.7	13.6	13.5	13.0	11.4	10.3	10.3	10.9	12.3	13.5	14.1	14.4	14.5
23	14.5	14.2	13.8	14.7	13.6	13.3	12.5	12.3	12.0	12.2	12.5	12.9	13.4	14.2	14.6
24*	14.7	14.5	14.6	14.0	13.7	13.4	12.6	12.8	12.6	12.6	13.4	13.9	14.7	15.2	15.0
25	14.2	14.3	14.3	14.2	14.5	13.7	13.9	39.4	--9.6	03.7	09.0	13.5	22.9	29.7	14.8
Mean.....	13.8	13.7	13.5	13.3	12.9	12.4	11.2	11.6	10.5	12.1	13.6	14.9	15.8	16.1	15.2
Mean*....	14.0	13.9	13.7	13.5	13.3	12.6	11.5	11.2	11.8	12.9	14.4	15.6	16.2	16.2	15.6

OCTOBER, 1909.

2° WEST PLUS TABULAR MINUTES.

1	13.8	13.7	13.7	13.4	13.0	12.3	11.7	11.7	12.7	13.9	15.3	15.6	15.7	15.7	15.6
2	14.2	13.8	17.6	12.7	12.4	12.6	11.2	12.7	12.9	14.8	15.8	16.7	18.3	17.8	16.8
3	14.3	14.4	14.0	14.2	13.9	12.9	12.6	11.7	11.8	12.6	13.8	13.8	13.9	15.2	16.0
4	14.5	14.8	14.0	14.7	13.6	12.7	11.6	11.9	11.1	11.5	12.6	12.8	13.8	14.8	15.8
5*	14.3	14.3	14.1	14.1	14.0	14.1	13.9	12.8	11.5	10.4	10.8	12.0	14.1	15.9	16.3
6	14.4	14.9	14.8	14.3	13.9	13.9	13.0	11.9	10.7	10.4	10.7	11.8	13.0	14.5	15.2
7	14.6	14.2	14.5	14.7	13.9	14.0	13.5	12.7	11.5	11.0	12.7	13.6	13.9	13.9	14.7
8	10.8	12.7	13.9	13.0	13.5	13.9	12.9	12.7	13.6	12.9	12.9	13.7	13.9	14.8	14.8
9	14.2	14.4	14.9	14.8	(14.4)	(14.1)	(13.6)	(13.1)	(12.9)	12.9	13.8	13.9	14.3	14.7	14.1
10*	13.9	13.9	13.9	13.5	13.5	13.5	13.0	12.7	12.8	13.9	15.9	16.9	17.0	16.9	16.8
11*	14.7	14.5	13.8	13.8	13.2	12.9	13.3	14.0	14.0	14.8	16.2	17.0	17.3	17.4	17.3
12	14.2	14.2	14.3	14.0	13.2	13.0	12.3	12.8	12.9	14.7	16.8	17.0	17.1	17.0	16.0
13	14.3	14.2	14.0	14.0	13.6	12.9	11.3	10.2	10.6	12.6	14.8	16.2	16.8	16.8	16.3
14*	14.4	14.5	14.4	14.0	14.0	13.6	13.0	12.7	13.2	14.1	15.3	16.0	16.7	16.1	16.1
15*	14.5	14.7	14.7	13.7	13.7	13.3	11.0	10.8	12.9	14.0	14.0	14.6	15.8	15.1	15.1
16*	14.5	14.4	14.0	13.9	13.7	13.1	11.9	11.4	11.2	12.6	14.7	16.7	16.8	16.1	15.8
17*	14.9	14.8	14.7	14.3	14.1	13.6	13.4	11.7	12.0	13.0	15.5	17.1	17.8	17.4	16.1
18	14.9	16.1	16.4	14.5	13.8	13.5	13.0	12.4	13.1	13.9	14.7	15.8	16.4	17.1	18.5
19	13.8	16.0	15.1	14.9	19.1	15.3	15.1	16.5	15.2	15.1	14.7	14.5	14.1	14.7	16.1
20	15.1	14.0	14.1	15.1	14.8	14.5	14.3	13.0	12.1	12.7	13.4	14.1	14.7	15.4	15.9
21	14.2	14.4	14.4	14.2	14.1	13.9	13.1	12.1	11.0	11.9	13.2	15.0	16.1	16.1	16.1
22	14.8	14.3	14.3	14.1	14.1	14.1	13.6	12.3	12.0	13.0	13.8	13.8	14.2	15.1	15.1
23	15.3	15.2	16.1	15.3	14.8	14.2	14.0	16.4	16.6	14.2	14.4	15.7	15.5	16.5	18.5
24	14.2	14.7	15.4	14.8	----	----	----	----	----	15.0	15.2	15.3	14.8	15.7	15.7
25	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
26	14.4	14.7	14.7	14.9	14.2	14.3	13.7	13.1	13.3	13.6	14.2	15.2	15.5	16.1	16.0
27*	14.8	15.0	14.5	14.3	14.2	14.2	14.0	13.0	12.4	13.0	14.4	15.1	14.4	14.7	15.5
28*	14.8	14.5	14.5	14.3	14.3	14.3	14.2	13.7	13.5	13.5	14.8	15.4	15.2	15.2	16.0
29	15.2	15.3	15.2	14.4	14.1	14.0	13.2	12.2	11.6	12.1	13.3	15.3	16.0	16.5	17.4
30*	14.4	14.9	14.9	14.7	14.4	14.3	13.1	11.9	11.1	12.2	13.2	14.3	15.1	15.3	16.1
31	15.1	14.4	14.8	15.2	14.8	14.3	13.2	13.0	12.2	12.8	14.2	15.6	17.2	18.6	18.3
Mean.....	14.4	14.5	14.6	14.3	14.1	13.7	13.1	12.7	12.4	12.8	14.0	14.9	15.4	15.9	16.1
Mean*....	14.5	14.6	14.4	14.1	13.9	13.7	13.3	12.5	12.2	12.8	14.2	15.4	15.8	16.1	16.1

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

29

SEPTEMBER, 1909.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day
										<i>h</i>	<i>m</i>		
14.0	13.1	12.9	13.3	12.4	13.0	13.3	13.3	13.3	12.9	12	46	16.5	1
14.9	14.4	13.5	12.6	13.3	13.3	13.4	13.4	13.5	13.1	14	00	16.3	2
16.2	14.3	12.9	11.2	12.0	11.6	12.7	12.8	13.2	13.7	12	00	17.2	3
15.9	15.3	14.3	14.3	13.6	12.8	13.1	13.3	13.3	12.6	16	00	15.9	4
16.1	15.4	14.4	14.4	13.4	13.8	11.8	12.6	13.6	13.0	15	00	16.4	5
15.4	15.3	14.7	13.6	14.1	13.9	13.4	13.2	13.2	12.8	15	46	15.6	6
15.2	14.4	14.6	14.3	13.6	13.6	13.0	13.6	13.5	13.0	15	34	15.4	7
14.5	14.4	14.4	13.5	12.5	13.4	13.1	12.7	14.2	13.7	13	00	15.4	8
14.7	14.5	14.4	14.3	14.3	14.1	14.0	13.6	13.4	13.6	12	37	16.1	9
14.6	13.8	14.3	13.1	14.1	14.1	14.0	14.1	14.0	14.0	12	00	16.2	10
14.4	14.5	14.5	13.8	14.0	14.0	13.8	13.7	13.8	13.7	12	00	15.5	11
14.4	14.0	14.1	14.1	13.7	13.6	13.5	13.6	13.6	13.9	12	39	17.0	12
14.4	13.7	13.8	13.6	13.8	13.5	13.5	13.9	14.0	13.8	12	25	17.7	13
13.7	14.0	14.3	13.6	13.6	13.9	13.9	13.5	13.8	13.3	12	00	15.9	14
13.4	13.6	13.6	13.5	13.6	13.7	13.8	13.8	13.3	13.3	12	50	15.9	15
14.8	14.3	14.1	14.2	14.2	14.2	13.9	14.0	14.0	14.2	13	00	17.4	16
15.4	15.0	14.7	14.6	14.3	14.1	14.2	14.1	14.1	13.9	14	00	17.0	17
16.0	14.9	14.6	14.5	14.5	14.2	14.2	14.2	14.2	14.2	13	50	17.1	18
14.8	14.7	14.8	14.5	14.4	14.3	14.2	14.2	14.2	13.7	14	00	15.2	19
15.5	14.5	14.5	14.5	14.4	14.4	14.0	14.3	14.5	14.0	14	00	16.9	20
15.5	15.2	13.5	11.5	12.7	12.2	11.8	12.5	14.3	13.5	13	21	17.4	21
14.7	14.6	14.6	14.5	14.4	14.3	14.2	14.0	13.6	13.4	16	00	14.7	22
14.9	14.9	14.6	14.6	14.3	14.3	13.9	14.3	14.3	13.8	3	22	15.6	23
14.8	14.9	14.7	14.6	14.6	14.4	13.8	14.6	14.4	14.1	14	00	15.2	24
14.0	12.1	14.6	13.9	12.6	12.8	13.6	13.4	13.4	14.3	7	34	41.3	25
13.3	13.0	13.5	13.9	13.5	13.9	14.4	14.6	14.3	13.4	12	23	14.9	26
13.7	13.7	14.4	14.3	14.3	14.3	14.2	13.8	14.2	13.8	13	00	15.7	27
13.9	14.4	14.8	14.5	14.5	14.5	14.3	14.5	14.5	13.5	3	40	15.0	28
14.7	14.7	14.6	14.6	14.2	14.4	14.5	14.2	14.2	14.1	14	25	15.1	29
14.6	14.6	14.5	13.9	13.7	13.6	12.8	13.7	14.0	13.8	12	17	17.7	30
14.7	14.3	14.2	13.9	13.8	13.7	13.6	13.7	13.9	13.6				8.0
14.9	14.4	14.4	14.2	14.2	14.0	13.9	14.1	14.1	13.9				5.6

OCTOBER, 1909.

2° WEST PLUS TABULAR MINUTES.

15.3	14.9	14.8	14.3	13.0	13.3	13.8	13.6	13.8	13.9	13	00	15.7	1
16.7	16.3	15.8	15.1	14.4	14.1	14.2	14.1	14.3	14.8	13	00	18.3	2
16.3	15.3	15.2	12.8	14.6	14.3	14.1	14.1	14.1	14.0	15	30	16.6	3
16.2	15.8	15.1	14.8	14.5	14.5	14.0	14.0	14.3	13.9	16	00	16.2	4
16.2	14.9	14.9	14.9	14.9	14.4	14.6	14.5	14.4	14.0	15	26	16.6	5
15.9	15.9	15.2	14.9	14.9	14.8	14.7	14.7	14.7	13.9	16	00	15.9	6
15.0	15.4	14.9	14.8	14.7	14.5	13.9	12.9	12.2	13.8	16	00	15.0	7
14.7	14.9	13.9	13.9	13.9	13.0	13.0	13.9	14.4	13.6	15	00	14.8	8
14.7	14.9	14.7	14.9	14.8	14.3	14.3	14.0	14.0	14.2	16	00	14.7	9
16.2	15.9	15.0	14.9	14.9	14.8	14.7	14.7	14.7	14.8	13	00	17.0	10
16.2	15.8	15.1	15.0	14.6	14.7	14.7	14.5	14.6	15.0	13	39	17.7	11
15.4	15.2	14.9	14.9	14.8	14.5	14.8	14.7	14.6	14.7	13	30	17.2	12
16.0	15.7	15.2	15.0	15.0	14.4	14.0	14.2	14.2	14.3	13	00	16.8	13
15.3	14.8	14.7	14.7	14.6	14.4	14.4	14.6	14.7	14.5	14	00	16.7	14
15.0	14.9	15.0	14.9	14.8	14.6	14.1	14.2	14.5	13.9	14	00	15.8	15
14.9	14.2	14.6	14.8	14.8	14.4	14.0	14.1	14.0	14.2	12	28	17.0	16
15.1	15.1	15.1	15.0	14.6	14.7	14.5	14.6	14.8	14.7	13	00	17.8	17
17.1	14.2	15.5	15.1	11.9	11.3	13.1	09.8	08.4	14.2	15	00	18.5	18
16.1	15.1	14.4	12.1	13.4	13.7	13.9	13.4	15.9	14.9	4	51	19.6	19
15.6	15.1	14.9	14.6	14.1	14.1	14.1	14.1	14.1	14.3	15	00	15.9	20
15.8	15.2	14.5	14.1	14.1	14.1	14.1	14.1	14.9	14.0	14	00	16.1	21
15.2	15.3	14.9	14.7	13.9	13.0	13.9	12.9	11.5	13.8	16	22	15.4	22
16.9	16.5	15.2	14.7	14.3	14.2	14.2	14.2	14.2	15.3	15	00	18.5	23
15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	14	00	12.1	24
15.7	15.3	15.2	14.6	14.3	14.2	14.6	15.1	15.1	14.6	14	00	16.1	25
15.4	15.4	15.1	14.4	14.3	14.3	14.8	14.7	14.4	14.4	15	21	15.8	26
16.0	15.4	14.9	14.3	14.3	14.3	14.5	14.9	15.0	14.7	15	02	16.1	27
17.0	16.1	14.9	14.7	13.7	14.3	14.3	14.5	14.7	14.6	15	00	17.4	28
16.1	15.6	15.1	14.5	14.3	14.3	14.3	14.3	15.2	14.3	15	16	16.3	29
17.3	16.3	15.3	15.0	14.3	14.2	14.3	14.3	14.4	15.0	14	08	18.8	30
15.8	15.4	15.0	14.6	14.3	14.1	14.2	14.0	14.2	14.4	14	00	13.1	31
15.6	15.2	15.0	14.7	14.6	14.5	14.4	14.7	14.7	14.5	14	51	12.2	32

NOVEMBER, 1909.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	14.6	14.9	14.5	15.4	15.0	14.3	13.4	13.2	12.2	12.1	13.0	14.3	15.2	16.3	17.2
2	14.7	15.0	15.0	14.8	14.6	14.3	14.0	13.0	12.2	13.3	13.3	14.3	14.8	16.2	16.5
3*	14.9	14.9	15.2	15.1	14.3	14.4	13.4	12.7	11.4	11.9	13.0	14.3	15.2	15.3	17.1
4*	15.2	15.3	14.8	15.0	14.4	14.4	13.4	11.9	11.3	11.5	13.1	14.5	16.1	17.3	17.4
5*	15.1	15.2	15.1	15.2	15.0	14.9	13.5	12.2	11.2	11.3	12.7	15.3	17.2	17.5	17.4
6	15.2	15.4	15.4	15.3	15.2	15.3	14.4	13.2	12.6	13.0	14.2	15.4	16.1	16.4	16.3
7	15.1	15.4	15.4	15.2	15.0	15.0	14.4	13.4	13.4	14.4	15.3	15.4	15.4	15.4	15.0
8	14.4	14.7	15.1	14.4	14.7	14.5	14.2	12.9	13.3	13.4	14.8	15.4	16.1	16.1	15.9
9*	15.1	15.1	14.7	14.5	14.4	14.4	14.4	13.9	14.4	14.4	16.4	17.2	16.7	16.6	16.4
10*	15.1	15.3	14.7	14.6	14.5	14.3	14.2	13.4	13.4	14.6	15.6	16.1	16.3	16.4	16.2
11*	15.2	15.2	14.5	14.5	14.5	14.3	14.1	13.4	13.5	14.3	15.5	16.3	16.5	16.5	16.4
12*	15.1	15.3	14.8	14.6	14.5	14.5	14.5	13.5	13.3	13.5	14.7	15.5	15.5	15.5	15.5
13*	14.8	15.2	15.2	14.9	14.8	14.6	14.5	13.3	13.0	13.3	14.2	14.8	15.6	16.2	16.4
14	15.2	15.4	15.2	15.1	15.0	14.5	14.5	13.6	13.5	14.8	15.5	16.3	16.4	16.4	16.5
15	15.7	14.4	14.5	14.5	16.3	15.2	15.5	15.1	13.4	13.3	13.4	13.6	14.4	15.4	15.5
16	15.0	15.3	15.0	15.5	14.6	15.0	14.5	13.2	12.5	12.0	13.3	14.6	15.4	15.8	16.3
17	14.5	15.0	14.6	14.5	14.5	14.5	13.6	12.4	11.4	11.3	12.5	14.2	15.5	15.9	16.2
18	15.5	16.0	15.5	15.4	14.8	14.6	14.6	13.5	12.3	12.2	14.0	15.3	16.6	17.2	17.2
19	15.5	15.5	15.5	15.5	15.4	15.3	14.4	13.4	12.4	12.5	13.5	15.2	15.8	16.5	16.6
20	15.3	15.5	16.3	15.2	15.5	15.7	15.4	13.5	13.6	13.5	13.5	15.0	15.7	15.7	16.4
21	15.0	15.3	14.7	14.5	14.5	14.9	14.1	13.5	13.3	13.5	14.5	15.3	15.6	15.8	16.5
22	15.7	16.6	16.5	15.6	15.4	14.9	14.7	13.9	13.3	13.5	14.0	14.6	14.8	15.4	15.6
23	15.5	15.4	14.8	14.8	14.6	15.5	14.6	13.9	13.7	14.6	14.6	15.6	15.8	16.5	16.5
24*	15.4	15.6	15.5	15.4	15.6	14.9	14.4	13.4	12.6	13.3	14.3	15.0	15.8	15.9	15.9
25*	15.4	15.6	15.5	15.2	14.8	14.8	14.4	12.7	12.6	12.6	13.5	13.6	14.6	15.1	15.3
26	15.5	15.5	15.6	15.2	14.9	15.3	14.8	13.7	13.0	12.7	13.7	14.0	14.9	15.6	15.4
27	15.7	15.7	16.5	14.8	13.6	14.4	14.7	12.6	11.7	12.4	14.2	15.7	16.7	16.6	16.8
28	15.1	15.3	15.7	14.8	14.6	14.8	15.5	14.5	13.7	14.0	15.7	16.7	17.5	17.8	17.7
29	15.5	15.5	15.4	15.7	14.9	14.8	14.8	13.8	12.7	11.8	12.6	13.6	15.4	16.8	17.4
30	15.8	14.1	14.9	14.7	19.7	22.6	20.8	19.2	16.7	12.7	12.7	13.5	14.8	15.8	16.7
Mean....	15.2	15.3	15.2	15.0	15.0	15.0	14.6	13.5	12.9	13.1	14.0	15.0	15.7	16.2	16.4
Mean*....	15.1	15.3	15.0	14.9	14.7	14.6	14.1	13.0	12.7	13.1	14.3	15.3	16.0	16.2	16.4

DECEMBER, 1909.

2° WEST PLUS TABULAR MINUTES.

1	14.7	14.8	14.0	14.8	16.0	14.8	14.8	15.9	12.4	10.6	11.8	13.9	15.7	16.9	17.0
2	14.9	15.1	14.7	16.7	15.2	15.0	14.9	13.4	13.5	13.5	13.8	14.8	15.9	16.9	16.9
3	15.8	15.8	16.9	15.8	15.1	14.8	(14.5)	(14.2)	13.8	13.6	14.7	15.5	15.8	16.4	17.1
4	15.0	15.5	15.7	15.9	15.0	14.9	15.1	13.9	12.8	12.0	12.8	14.9	16.0	17.0	17.4
5	15.7	15.7	15.6	15.6	15.6	15.6	15.3	13.9	12.0	11.8	12.5	14.0	15.2	16.0	17.7
6	14.9	15.4	15.8	15.9	15.1	15.1	16.6	14.9	13.0	14.0	12.9	13.9	14.7	15.8	16.9
7	15.3	15.3	15.2	15.1	15.0	15.0	15.0	14.2	13.3	12.6	12.8	14.0	15.6	16.4	17.0
8*	15.6	15.6	15.6	15.4	15.6	15.7	16.1	15.8	14.7	14.5	14.7	14.7	15.6	15.8	16.4
9*	15.2	15.2	15.0	14.7	14.8	14.6	15.1	14.8	13.9	13.0	13.1	14.2	16.3	17.1	17.1
10*	15.7	15.7	15.7	15.7	15.6	15.6	15.8	14.8	13.9	13.7	13.9	14.5	15.1	15.9	16.1
11*	15.9	16.0	15.9	15.8	15.7	15.4	15.7	15.1	14.5	14.0	14.8	15.9	17.3	18.0	18.0
12*	16.0	16.0	16.0	16.1	16.0	15.1	15.7	14.1	13.2	13.7	14.9	18.0	19.3	18.0	17.9
13	16.6	16.4	18.0	15.1	15.3	16.1	15.7	14.9	13.0	14.9	15.1	15.5	16.3	16.8	16.8
14	14.7	16.1	16.0	16.3	16.0	16.1	15.9	14.7	13.5	13.2	13.9	14.9	15.9	16.3	16.9
15	16.3	16.6	16.9	16.5	16.4	16.4	17.3	15.3	13.6	12.2	13.2	14.6	16.1	17.9	18.3
16	16.3	16.3	16.0	17.3	16.4	17.3	17.6	14.9	14.0	13.4	13.6	14.8	16.8	18.2	18.3
17	16.2	16.2	16.3	16.3	16.2	16.2	16.1	14.5	13.3	13.1	14.0	15.2	15.6	16.3	17.3
18	16.2	16.2	16.3	16.3	16.2	16.2	16.3	15.2	14.3	13.8	13.7	14.3	16.0	17.4	17.6
19	16.1	16.4	16.7	16.9	16.6	16.7	17.2	16.3	14.9	13.9	13.3	13.8	15.3	16.7	17.4
20	16.3	16.2	16.2	16.3	16.2	16.2	16.5	17.2	16.0	14.5	14.5	15.1	16.2	17.2	17.2
21	16.2	16.2	16.2	16.3	16.4	16.4	16.8	16.1	15.1	14.2	15.0	16.2	16.5	17.8	17.1
22	15.6	16.4	16.3	16.3	16.2	16.2	16.1	14.5	13.3	13.1	14.0	15.2	15.6	16.3	17.3
23	16.4	16.2	16.1	15.6	15.6	15.2	15.6	14.8	14.1	13.4	13.4	14.3	15.2	16.4	17.1
24*	16.3	16.3	16.3	16.2	16.1	15.6	15.7	15.1	14.1	13.1	13.9	14.3	15.8	18.0	18.6
25*	16.0	16.3	16.3	16.4	16.2	16.0	16.3	15.2	14.2	13.2	14.1	15.3	16.4	17.4	17.9
26*	16.6	16.4	16.4	16.4	17.0	16.5	16.6	16.4	14.5	14.4	15.2	17.0	17.8	18.2	17.8
27*	16.4	16.4	16.4	16.4	16.4	16.9	16.3	14.6	14.2	14.0	14.3	16.1	17.2	17.8	17.4
28*	16.5	16.6	16.6	16.5	16.5	16.4	16.3	14.9	13.5	12.5	14.1	16.4	17.4	18.3	18.3
29	16.5	16.5	16.6	16.5	16.5	16.5	16.5	15.4	14.3	13.3	13.5	15.2	16.6	17.5	18.2
30	16.3	16.5	16.4	16.4	16.3	16.3	16.2	15.1	14.3	14.4	15.0	16.1	17.4	17.8	18.6
31	16.5	16.6	16.7	16.7	16.6	16.6	17.1	16.4	15.2	14.5	14.7	16.0	17.3	19.6	19.6
Mean....	15.9	16.0	16.1	16.1	16.0	15.9	16.0	15.1	14.0	13.4	13.9	15.2	16.3	17.2	17.6
Mean*....	16.0	16.0	15.9	15.9	15.9	15.8	15.9	15.1	14.1	13.5	14.1	15.2	16.4	17.3	17.5

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

NOVEMBER, 1909.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day		
16.3	15.7	15.0	14.5	14.3	14.1	14.3	14.3	14.4	14.5	15 00	17.2	10 00	12.1	5.1	1
16.2	15.4	15.3	15.2	14.7	14.5	14.6	14.9	14.8	14.6	14 45	16.8	9 00	12.2	4.6	2
16.7	16.2	15.5	15.2	14.6	14.3	14.3	14.3	14.5	14.5	15 00	17.1	8 44	11.2	5.9	3
17.3	16.4	15.4	15.1	14.5	14.7	14.7	14.8	15.0	14.7	15 00	17.4	9 00	11.3	6.1	4
16.6	16.2	15.4	15.3	14.5	14.6	14.7	15.0	15.3	14.8	14 00	17.5	9 00	11.2	6.3	5
15.4	15.6	15.4	15.0	14.7	14.7	15.2	14.9	15.3	15.0	14 00	16.4	9 42	12.3	4.1	6
14.8	15.3	15.4	15.1	14.7	14.4	14.2	14.5	14.7	14.8	13 00	15.4	8 25	13.3	2.1	7
15.5	15.5	15.4	14.9	14.8	14.6	14.6	14.9	15.0	14.8	14 30	16.4	8 14	12.3	4.1	8
15.8	15.4	15.2	15.2	14.4	14.7	15.1	14.9	14.7	15.2	12 00	17.2	8 00	13.9	3.3	9
15.7	16.4	15.5	15.4	14.7	15.4	14.5	14.6	14.6	15.1	14 00	16.4	8 60	13.4	3.0	10
16.3	15.7	15.5	15.3	14.8	14.8	14.9	14.8	15.0	15.1	13 00	16.5	8 00	13.4	3.1	11
15.5	15.5	15.4	15.1	14.7	14.6	14.7	14.5	14.7	14.8	12 24	15.7	9 00	13.3	2.4	12
15.7	15.5	15.4	15.1	14.7	14.6	14.5	14.5	14.5	14.8	15 00	16.4	9 00	13.0	3.4	13
15.7	15.2	14.5	14.1	13.8	13.4	13.5	13.9	14.2	14.8	15 00	16.5	21 28	12.3	4.2	14
15.4	15.3	14.5	14.4	14.2	13.8	14.4	14.4	14.7	14.6	5 14	16.5	9 27	12.6	3.9	15
15.1	15.0	13.8	14.0	14.4	14.2	14.3	14.5	14.5	14.5	15 00	16.3	10 00	12.0	4.3	16
16.0	15.6	15.2	14.7	14.6	14.6	14.7	14.6	14.7	14.4	15 00	16.2	9 44	11.2	5.0	17
16.5	15.2	14.7	14.5	14.4	14.3	14.4	14.5	14.8	14.9	15 00	17.2	9 35	11.7	5.5	18
16.5	15.6	15.6	14.9	14.5	14.5	14.7	15.1	15.5	15.0	15 00	16.6	9 00	12.4	4.2	19
16.5	15.3	13.9	14.5	14.2	13.4	14.0	14.5	14.5	14.9	16 00	16.5	8 42	13.0	3.5	20
16.5	15.6	14.8	15.0	14.7	14.5	14.8	14.9	15.4	14.9	16 00	16.5	8 42	13.2	3.3	21
15.6	15.7	15.4	15.3	14.9	14.8	15.0	15.5	15.6	15.1	2 43	16.8	9 27	12.7	4.1	22
15.6	15.4	14.9	14.9	14.6	14.6	14.6	14.6	15.5	15.0	14 00	16.5	8 28	13.6	2.9	23
15.7	15.6	15.1	15.2	14.9	14.8	14.7	15.1	15.1	15.0	13 37	16.3	9 13	12.4	3.9	24
15.3	15.7	15.0	14.8	14.9	15.0	15.1	15.5	15.7	14.7	2 00	15.6	8 37	12.4	3.2	25
15.2	15.5	15.2	14.8	14.7	14.7	14.8	14.4	15.6	14.8	14 25	15.7	9 27	12.6	3.1	26
16.8	15.7	14.9	14.7	14.7	14.5	14.4	14.8	14.9	14.9	15 26	16.9	9 24	11.6	5.3	27
16.8	15.8	15.3	14.9	14.8	14.8	14.9	15.0	15.4	15.5	14 00	17.8	9 00	13.7	4.1	28
17.4	16.5	15.3	15.2	14.9	14.9	15.1	13.9	14.6	14.9	15 38	17.8	10 00	11.8	6.0	29
15.8	14.5	14.8	11.9	14.8	13.9	13.9	13.9	13.9	15.5	6 01	22.8	19 02	11.8	11.0	30
16.0	15.6	15.1	14.8	14.6	14.5	14.5	14.7	14.9	14.9					4.4	
16.1	15.9	15.3	15.2	14.7	14.8	14.7	14.8	14.9	14.9					4.1	

DECEMBER, 1909.

2° WEST PLUS TABULAR MINUTES.

16.8	16.3	14.9	12.1	14.6	13.8	15.8	14.7	14.8	14.7	15 33	17.3	10 13	10.5	6.8	1	
16.6	15.8	15.0	14.8	14.6	14.3	14.7	15.1	15.7	15.1	14 26	17.2	9 31	13.3	3.9	2	
16.6	15.8	15.4	14.9	14.8	14.5	14.7	14.7	14.7	15.2	15 00	17.1	10 60	13.6	3.5	3	
16.9	16.6	15.6	15.5	14.9	14.9	15.0	15.2	15.4	15.2	15 00	17.4	10 00	12.0	5.4	4	
17.4	16.5	15.8	15.4	15.0	14.9	14.9	14.9	14.8	15.1	15 21	17.8	10 00	11.8	6.0	5	
16.9										15 00	16.9	11 00	12.9	4.0	6	
16.4	15.8	15.2	14.7	14.7	14.6	14.7	14.7	15.3	14.9	15 00	17.0	10 00	12.6	4.4	7	
16.1	15.8	15.5	15.4	14.9	14.7	14.7	14.7	15.1	14.5	15 00	16.4	10 00	14.5	1.9	8	
16.7	15.9	15.5	15.2	15.2	15.3	15.5	15.6	15.7	15.2	14 22	17.2	10 00	13.0	4.2	10	
16.1	15.8	15.7	15.2	15.2	15.3	15.8	15.9	15.9	15.4	15 00	16.1	10 00	13.7	2.4	11	
16.9	15.9	15.7	15.6	15.3	15.3	15.8	15.9	15.9	15.8	14 00	18.0	10 00	14.0	4.0	12	
17.0	16.0	15.1	14.9	14.7	14.9	13.2	14.8	15.9	15.7	13 10	19.5	21 48	12.6	6.9	13	
17.0	15.7	14.8	12.6	13.5	13.5	13.8	13.9	14.5	15.3	3 06	18.1	19 00	12.6	5.5	14	
16.5	16.1	15.3	14.9	14.7	14.7	14.8	14.6	14.2	15.3	15 00	16.9	9 40	13.0	3.9	15	
17.3	16.2	15.7	15.6	15.2	14.9	15.0	15.0	15.8	15.8	14 42	18.4	10 00	12.2	6.2	16	
17.5	16.4	16.0	15.7	15.0	14.9	15.4	15.9	16.0	15 00	18.3	10 00	13.4	4.9	17		
17.1	16.7	16.2	15.4	15.5	15.6	15.2	14.5	15.7	14 25	18.1	11 00	13.7	4.4	18		
17.4	16.4	16.1	16.1	15.9	15.7	15.9	16.2	16.2	16.0	15 13	17.6	11 00	13.3	4.3	19	
16.9	16.2	16.2	16.2	16.1	16.0	16.1	16.2	16.2	16.2	7 47	17.6	10 32	14.3	3.3	20	
16.2	15.8	16.1	14.9	15.1	14.6	14.5	15.1	15.4	15.8	13 55	18.0	10 00	14.2	3.8	21	
17.0	16.4	16.2	15.7	15.5	15.5	15.6	15.8	16.1	15.7	14 00	17.3	10 00	13.1	4.2	22	
17.5	16.4	15.8	15.5	15.5	15.7	16.0	16.2	16.2	15.6	15 32	17.6	10 30	13.1	4.5	23	
18.4	16.7	16.2	16.1	16.0	16.0	16.1	15.2	15.5	15.9	15 00	18.6	10 00	13.1	5.5	24	
17.4	16.5	16.2	15.5	15.3	15.3	15.5	16.1	16.4	15.9	15 00	17.9	10 00	13.2	4.7	25	
17.2	16.6	16.3	15.1	15.5	15.6	15.8	16.2	16.3	16.3	14 16	18.5	10 00	14.4	4.1	26	
17.4	17.1	16.2	15.3	15.1	15.2	14.6	15.9	16.3	16.0	14 00	17.8	9 31	13.5	4.3	27	
17.5	16.6	16.3	16.1	15.6	15.6	15.6	16.2	16.5	16.1	14 16	18.4	10 00	12.5	5.9	28	
17.5	16.9	16.4	16.3	15.7	15.4	15.6	15.8	16.1	16.1	15 00	18.2	10 00	13.3	4.9	29	
18.5	16.8	16.5	15.9	15.6	15.6	15.6	15.6	16.2	16.2	15 00	18.6	9 00	14.3	4.3	30	
18.6	17.3	16.6	16.3	16.3	15.1	15.4	14.8	14.7	15.5	16.4	14 44	19.7	10 00	14.5	5.2	31
17.1	16.3	15.8	15.3	15.2	15.1	15.2	15.4	15.6	15.6					3.5		
17.0	16.3	15.9	15.4	15.3	15.3	15.4	15.7	15.9	15.7					4.1		

## PORTO RICO MAGNETIC OBSERVATORY.

JANUARY, 1910.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	15.6	16.0	16.6	16.5	16.6	16.4	16.6	15.3	13.5	12.5	12.9	14.9	16.7	17.7	18.5
2*	16.5	16.7	16.7	16.7	16.6	16.5	16.7	15.8	14.4	12.8	14.3	16.3	18.3	18.7	18.6
3	16.3	16.5	16.6	16.6	16.6	16.5	16.7	15.6	14.4	12.7	13.2	15.6	18.8	20.2	19.5
4	16.5	16.6	16.7	16.1	16.7	16.4	16.2	15.5	14.8	15.3	14.9	16.3	17.2	17.6	17.7
5	16.0	16.3	16.1	16.0	16.0	15.9	16.6	16.0	16.5	14.0	13.3	14.5	17.7	19.8	19.7
6*	16.2	16.6	16.5	16.6	16.5	16.6	16.7	15.8	13.5	12.9	12.5	13.5	15.8	17.6	17.9
7*	16.3	16.5	15.9	16.3	16.5	16.3	16.7	15.6	14.6	14.1	14.7	16.6	17.7	18.3	17.7
8*	16.5	16.6	16.5	16.5	16.7	16.5	16.7	15.6	14.2	13.3	13.5	15.9	17.7	17.7	17.6
9	16.6	16.7	16.7	16.5	16.6	16.6	16.9	16.4	14.6	13.4	13.5	14.7	17.2	18.8	18.7
10*	16.7	16.8	16.7	16.8	16.7	16.7	16.7	15.8	14.5	13.2	14.0	15.9	17.6	17.3	17.2
11															
12	16.6	16.7	16.7	16.5	16.1	17.0	16.7	15.5	13.9	13.5	14.1	16.5	17.7	18.6	18.7
13	16.7	17.6	17.7	17.7	16.9	16.7	16.7	15.6	14.6	13.3	12.5	14.1	16.7	17.9	18.0
14	17.1	17.0	17.2	17.1	16.7	16.6	16.6	15.6	13.8	13.0	12.6	14.5	16.7	17.7	17.7
15*	16.8	17.1	17.1	17.1	16.9	16.8	16.7	15.6	14.6	14.6	14.7	15.4	16.7	17.9	18.1
16*	16.8	17.2	17.1	17.0	16.9	16.7	16.7	15.2	13.0	11.6	12.3	14.6	16.6	17.7	18.5
17	16.9	17.0	17.4	17.2	16.9	16.8	16.8	15.6	15.4	12.2	13.5	16.4	18.6	19.6	18.8
18	16.9	17.3	17.6	17.9	17.5	16.8	16.6	14.9	13.1	11.6	12.6	15.4	16.9	17.9	18.8
19	16.8	17.6	17.1	17.0	16.8	17.1	16.8	15.6	13.3	11.6	12.4	14.8	17.3	18.9	18.9
20*	16.8	16.8	17.0	17.3	17.4	16.9	16.8	15.8	13.7	13.1	13.2	16.7	17.9	18.9	19.5
21	16.9	17.0	17.1	17.5	16.9	16.8	16.8	15.8	13.4	12.2	12.6	13.7	18.9	20.2	20.1
22	16.8	17.1	17.1	16.9	16.8	17.0	16.8	15.4	13.2	11.3	11.3	14.6	17.0	18.9	18.9
23	17.4	17.6	17.7	17.0	16.8	16.8	16.7	15.6	13.8	13.0	12.8	15.6	17.9	19.1	19.4
24	15.6	15.8	16.6	16.8	16.3	16.6	16.7	15.9	14.6	14.7	14.8	15.6	16.8	17.9	18.4
25	17.6	16.8	16.7	16.6	15.8	17.6	17.9	16.8	14.8	14.8	15.8	17.7	18.8	19.0	19.8
26	16.7	16.6	17.6	16.7	16.9	17.6	18.2	17.1	14.6	13.0	13.2	15.4	17.9	19.6	19.3
27	16.8	17.1	16.8	17.6	17.3	16.8	16.6	15.3	13.7	13.4	13.7	15.1	17.6	18.9	19.1
28*	16.8	16.9	16.8	16.8	16.7	16.8	17.1	16.7	14.7	13.7	13.7	15.3	18.7	19.4	18.9
29	16.8	16.9	17.0	17.1	17.0	16.8	16.9	15.8	13.7	12.5	11.9	12.5	15.8	18.0	19.0
30*	16.8	16.9	17.0	16.9	17.0	16.9	17.0	16.0	14.9	14.7	14.7	15.8	17.5	18.6	19.0
31	16.8	16.8	16.8	17.0	16.8	16.8	17.0	15.9	13.8	12.5	13.2	15.8	17.6	17.9	17.9
Mean.....	16.7	16.8	16.9	16.9	16.7	16.7	16.8	15.8	14.2	13.2	13.4	15.3	17.5	18.5	18.7
Mean*....	16.6	16.8	16.7	16.8	16.8	16.7	16.8	15.8	14.2	13.4	13.8	15.6	17.4	18.2	18.3

FEBRUARY, 1910.

2° WEST PLUS TABULAR MINUTES.

1*	16.9	17.0	17.0	17.0	16.9	16.9	17.1	15.9	14.1	12.6	12.6	14.7	16.9	19.1	20.2
2	17.2	17.0	16.8	16.9	16.9	17.2	17.8	16.8	14.7	13.2	14.0	16.7	18.2	19.1	19.8
3	16.5	16.6	16.8	16.8	16.8	16.1	15.9	16.8	15.6	13.1	12.0	12.6	16.1	18.8	19.8
4	16.7	16.8	16.8	16.8	16.8	16.9	17.7	16.8	14.8	13.6	13.5	15.0	16.8	17.5	18.6
5	16.7	16.8	16.8	17.0	17.4	17.1	17.0	15.7	14.7	13.8	14.5	15.3	17.5	18.4	18.3
6*	16.9	16.9	17.0	17.1	17.2	17.2	17.6	16.5	14.7	14.5	13.8	15.7	17.5	18.6	18.2
7*	17.1	17.2	17.3	17.4	17.5	17.5	17.3	16.1	14.6	12.7	13.5	15.7	17.4	17.8	18.0
8*	17.0	17.0	17.1	17.1	17.0	17.0	17.3	16.1	14.2	13.6	16.1	17.6	18.4	18.1	17.6
9*	17.4	17.4	17.4	17.3	17.0	17.0	16.8	14.8	13.8	14.8	17.2	18.2	18.9	18.1	17.8
10*	17.7	17.7	17.7	17.7	17.5	17.1	17.0	16.8	14.6	15.1	17.7	18.9	19.8	17.8	
11*	17.8	17.8	17.8	17.6	17.0	16.9	16.0	13.6	12.5	13.6	16.7	18.9	20.1	20.1	19.0
12*	17.8	17.8	17.8	17.3	17.5	17.0	16.8	15.7	15.5	15.6	18.2	19.9	20.2	19.6	18.4
13*	17.7	17.8	17.7	17.5	17.5	17.0	16.6	15.5	14.9	16.0	18.3	21.0	22.0	21.8	20.2
14	17.5	17.6	17.4	17.0	16.8	16.0	15.6	14.7	14.4	14.7	17.8	18.9	19.2	19.1	18.9
15	17.8	18.0	18.2	17.8	17.4	16.8	14.8	14.7	14.8	14.8	16.0	17.8	19.8	20.5	20.3
16	17.5	18.0	17.8	17.8	16.9	16.7	16.6	15.6	14.8	14.7	15.6	16.9	18.0	19.0	18.8
17	17.1	17.1	17.5	17.7	17.1	17.4	17.4	16.0	14.7	15.0	16.7	17.6	19.0	18.9	19.0
18	16.9	17.1	17.4	17.7	18.2	18.2	18.8	18.0	16.9	15.0	14.8	15.7	17.4	18.0	18.2
19*	17.6	17.3	17.5	17.5	17.4	17.5	17.8	17.0	15.3	13.9	13.9	15.7	16.7	17.2	18.0
20	17.8	17.7	17.6	17.6	17.5	18.0	18.8	17.0	16.9	15.3	18.3	20.1	19.1	18.9	19.9
21	16.9	17.5	17.3	18.9	17.6	16.9	17.0	16.7	16.0	15.6	15.9	16.8	17.3	18.3	18.6
22	17.5	17.6	17.5	17.4	17.2	17.0	16.8	15.9	15.5	15.7	16.7	17.6	18.2	18.2	18.8
23	16.8	16.8	17.2	16.7	16.7	16.6	16.6	15.5	15.3	16.7	17.6	(18.7)	(19.6)	(19.6)	(19.3)
24	17.7	17.7	18.0	17.7	17.2	17.2	17.7	16.9	16.1	15.7	16.6	17.2	18.0	18.0	17.8
25	17.1	17.7	17.8	19.0	20.3	19.3	19.2	19.0	18.4	17.6	18.0	17.6	(18.9)	(19.3)	(19.4)
26	17.1	17.3	17.1	17.8	16.9	16.6	17.1	17.7	17.0	16.7	16.7	16.9	17.7	18.3	18.2
27	17.2	17.4	17.2	16.6	16.2	16.1	16.6	16.5	15.7	15.6	15.7	16.2	16.5	17.0	17.1
28	16.9	17.1	17.2	17.2	16.8	16.8	16.8	15.7	16.1	15.9	16.8	17.1	17.6	18.0	18.1
Mean.....	17.2	17.3	17.4	17.4	17.2	17.0	17.2	16.1	15.1	14.8	15.9	17.3	18.4	18.8	18.7
Mean*....	17.4	17.4	17.4	17.3	17.2	17.1	17.0	15.7	14.4	14.2	15.8	17.6	18.8	18.9	18.5

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

JANUARY, 1910.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum		Minimum		Range	Day
18.5	17.5	16.7	16.2	15.6	15.9	15.6	16.5	16.3	16.0	15 33	18.6	10 00	12.5	6.1	1
17.9	17.1	16.7	16.5	16.0	15.9	16.0	16.1	16.4	15 25	18.8	10 00	12.8	6.0	2	
18.6	16.2	16.6	16.2	15.8	15.6	15.5	16.1	15.6	16.3	13 46	20.4	10 00	12.7	7.7	3
17.7	17.2	16.7	16.7	16.4	16.1	16.0	15.9	15.8	16.4	15 00	17.7	9 16	14.7	3.0	4
19.1	17.7	17.1	16.9	16.7	16.3	16.2	15.8	15.9	16.5	13 33	20.0	11 00	13.3	6.7	5
17.7	17.5	16.9	16.7	16.2	15.6	15.6	15.6	16.0	15 00	17.9	11 00	12.5	5.4	6	
16.8	16.7	16.7	16.6	16.5	16.4	16.5	16.3	15.9	16.3	13 52	18.6	9 45	13.9	4.7	7
17.4	16.7	16.7	16.6	16.5	16.6	16.4	16.5	16.3	16.3	12 30	17.9	10 19	13.1	4.8	8
17.7	17.5	16.7	16.6	16.6	16.7	16.6	16.7	16.5	14 00	18.8	10 00	13.4	5.4	9	
16.9	16.7	16.7	16.6	16.5	16.7	16.6	16.7	16.4	16.4	13 12	17.7	10 00	13.2	4.5	10
17.1	17.1	16.1	16.1	16.0	16.1	16.5	16.6	16.6	16.3	15 00	18.7	9 47	13.3	5.4	11
17.9	17.3	16.6	15.9	15.2	15.8	15.8	15.9	16.4	16.3	14 27	18.1	11 00	12.5	5.6	12
17.5	16.7	16.6	16.5	16.3	16.0	16.5	16.7	16.7	16.3	14 21	18.0	11 00	12.6	5.4	13
17.2	16.7	16.6	16.4	16.3	16.5	16.2	16.6	16.7	16.5	14 33	18.3	10 00	14.6	3.7	14
17.3	16.7	16.7	16.6	16.5	16.2	16.4	16.6	16.7	16.5	14 00	19.5	10 00	13.1	5.7	15
18.0	17.6	16.8	16.6	16.4	16.4	16.5	16.8	16.2	15 00	18.5	10 24	11.4	7.1	16	
18.0	17.0	15.9	15.6	15.6	15.8	15.6	16.6	16.4	15 55	19.8	10 00	12.2	7.6	17	
18.2	17.7	16.7	16.7	15.8	14.5	15.8	15.8	16.4	16.2	15 00	18.8	10 00	11.6	7.2	18
18.8	17.7	16.8	16.8	16.7	16.7	16.7	16.6	16.7	16.5	15 00	18.9	10 21	11.4	7.5	19
18.7	17.5	16.8	16.8	16.7	16.7	16.6	16.7	16.8	16.7	15 00	19.5	10 00	13.1	6.4	20
19.0	17.9	16.9	16.8	15.8	15.2	14.9	15.8	16.1	16.4	14 27	20.4	10 00	12.2	8.2	21
18.1	17.2	17.1	16.1	15.9	16.0	16.7	16.8	17.2	16.3	14 21	19.7	10 18	10.9	8.8	22
18.8	17.4	16.8	16.4	15.6	14.7	14.8	14.7	15.8	16.3	15 00	19.4	10 36	12.7	6.7	23
18.1	17.4	17.0	16.8	16.7	16.6	16.3	16.8	16.9	16.5	15 48	18.9	9 00	14.6	4.3	24
18.9	17.6	17.1	16.8	14.8	15.8	15.8	15.5	15.8	16.9	14 51	20.1	9 23	14.6	5.3	25
17.9	16.6	16.4	16.7	14.9	14.8	15.8	15.8	16.7	16.5	14 33	20.0	9 54	12.6	7.4	26
18.9	18.5	17.1	16.7	16.6	16.1	16.0	16.5	17.2	16.6	15 00	19.1	9 35	13.3	5.8	27
18.5	18.0	17.4	16.8	16.7	16.5	16.5	16.7	16.8	16.8	14 00	19.4	10 27	13.4	6.0	28
18.9	18.0	17.4	16.8	16.7	16.2	16.6	16.7	16.8	16.3	15 29	19.1	11 00	11.9	7.2	29
17.3	16.9	17.2	16.9	16.8	16.8	16.7	16.7	16.8	16.4	14 00	17.9	10 00	12.5	5.4	31
18.1	17.3	16.8	16.6	16.2	16.1	16.1	16.2	16.5	16.4	16 00				6.0	
17.8	17.3	16.9	16.7	16.5	16.4	16.4	16.4	16.5	16.4	16 00				5.3	

FEBRUARY, 1910.

2° WEST PLUS TABULAR MINUTES.

19.7	18.4	17.8	17.4	17.0	16.8	16.7	16.8	16.8	16.8	15 00	20.2	10 31	12.5	7.7	1
18.9	17.7	17.4	16.8	16.7	16.6	16.5	16.7	16.0	16.9	15 00	19.8	10 26	13.0	6.8	2
18.9	18.1	17.6	17.3	16.8	16.5	16.1	16.5	16.7	16.6	14 31	20.2	10 00	12.0	8.2	3
17.8	17.8	17.2	16.8	16.7	15.9	15.7	16.4	16.6	16.5	14 47	18.8	11 00	13.5	5.3	4
18.1	18.5	17.7	17.3	16.9	16.7	16.7	16.7	16.8	16.8	14 29	18.5	10 00	13.8	4.7	5
18.3	18.2	17.7	17.2	16.9	16.8	16.7	16.8	16.8	16.9	14 00	18.6	10 26	13.3	5.3	6
17.8	17.8	17.7	17.4	17.0	16.8	16.8	16.8	16.8	16.8	14 17	18.1	10 15	12.6	5.5	7
17.0	16.8	17.3	17.3	16.8	16.8	16.8	17.1	17.2	16.8	13 09	18.6	9 35	13.5	5.1	8
17.0	17.2	17.1	16.8	16.9	16.8	16.9	17.0	17.6	17.0	13 00	18.9	9 00	13.8	5.1	9
16.9	16.9	17.1	17.0	16.9	16.8	17.1	17.7	17.8	17.3	13 00	19.8	9 00	14.6	5.2	10
17.7	17.4	17.6	17.3	16.8	16.9	17.0	17.5	17.6	17.1	13 00	20.1	9 00	12.5	7.6	11
16.8	16.1	17.1	17.3	17.2	16.9	16.9	17.2	17.6	17.4	13 00	20.2	8 34	15.4	4.8	12
18.8	17.6	17.1	17.0	16.7	16.4	16.8	17.2	17.3	17.8	13 00	22.0	8 40	14.7	7.3	13
18.6	17.6	17.4	17.6	17.3	17.1	17.2	17.3	17.6	17.2	14 04	19.9	9 19	13.6	6.3	14
19.8	18.2	18.0	16.9	16.7	16.7	16.7	17.0	17.0	17.4	14 17	20.7	9 33	14.6	6.1	15
18.2	17.8	17.6	17.2	17.1	16.9	16.4	16.9	17.1	17.1	14 00	19.0	9 27	14.6	4.4	16
19.0	18.8	17.4	14.7	15.6	16.0	15.9	16.6	16.8	17.0	13 22	19.2	19 29	13.6	5.6	17
18.8	18.8	18.0	17.2	17.1	16.9	17.1	17.1	17.2	17.4	13 00	22.0	8 40	14.7	4.2	18
18.2	18.3	18.3	17.5	17.7	17.1	17.2	17.5	17.8	17.1	17 39	18.7	10 31	13.6	5.1	19
18.9	19.0	18.0	17.3	16.8	17.6	17.4	17.2	16.9	17.9	14 44	20.4	9 47	14.4	6.0	20
18.7	18.4	17.7	17.0	17.7	17.6	17.3	17.4	17.6	17.4	4 17	20.7	10 00	15.6	5.1	21
18.5	17.6	17.7	17.5	17.3	17.3	16.9	16.8	16.7	17.2	14 29	18.8	9 00	15.5	3.3	22
(18.6)	18.0	17.8	17.7	17.3	17.3	17.1	17.3	17.7	17.4	(13 30)	(19.6)	9 00	15.3	4.3	23
17.8	18.2	18.0	17.7	17.2	17.2	17.3	16.7	17.0	17.4	13 00	18.0	9 25	15.5	2.5	24
(19.1)	18.8	18.6	18.0	17.7	17.2	17.3	16.6	17.3	18.3	5 00	20.3	22 49	16.3	4.0	25
18.3	18.2	18.7	17.7	17.3	17.1	17.0	17.3	17.6	17.4	13 52	18.6	5 36	16.1	2.5	26
17.4	18.1	18.8	18.1	17.7	17.7	17.1	17.2	16.8	16.9	18 00	18.8	9 43	15.4	3.4	27
18.7	18.8	18.7	18.0	17.7	17.7	16.8	16.9	16.8	17.3	16 54	18.9	8 00	15.7	3.2	28
18.3	18.0	17.8	17.2	17.1	16.9	16.8	17.0	17.1	17.2					5.2	
17.8	17.5	17.5	17.2	17.0	16.8	16.9	17.2	17.3	17.1					5.9	

## PORTO RICO MAGNETIC OBSERVATORY.

MARCH, 1910.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	17.8	16.9	17.7	17.0	16.9	17.1	17.2	16.4	15.2	14.8	14.9	15.3	16.0	16.7	17.4
2	18.1	17.0	17.3	17.1	17.0	17.7	18.3	18.1	17.3	16.4	16.0	16.0	17.2	18.7	
3	17.1	17.0	17.0	17.1	17.4	17.0	18.4	18.7	17.3	16.8	16.2	15.8	16.1	17.0	17.8
4	17.0	17.3	17.4	17.5	17.0	17.1	18.1	17.9	17.0	16.2	15.6	14.9	15.4	16.0	17.8
5	17.0	17.1	17.2	17.3	18.1	17.0	17.0	16.5	16.1	16.0	16.0	17.2	17.9	18.1	17.8
6	17.9	17.9	17.7	17.5	17.2	16.9	17.3	16.9	16.1	16.4	15.8	16.1	16.1	16.8	17.2
7	17.7	18.9	17.8	17.0	17.9	17.3	17.1	17.1	17.2	17.0	17.6	17.6	17.6	17.6	17.0
8*	17.7	17.8	16.9	16.9	16.9	16.8	16.9	16.9	16.8	16.7	16.6	16.6	16.7	16.3	16.4
9*	17.9	17.8	17.2	17.4	16.1	17.0	17.0	17.0	16.9	17.2	17.1	17.0	16.9	16.9	16.8
10*	18.0	17.3	17.2	17.0	17.0	16.9	16.7	15.9	15.7	15.9	16.8	17.1	17.5	17.9	18.2
11*	17.8	17.8	17.9	17.4	17.0	(16.6)	(16.2)	15.8	16.1	15.9	15.9	16.1	17.0	18.0	18.2
12*	18.0	17.9	17.8	17.5	17.1	17.1	17.1	17.0	15.9	16.5	16.1	16.8	17.9	18.9	18.6
13	17.9	17.9	17.6	17.1	16.9	16.3	15.9	15.0	14.4	15.5	16.7	17.9	18.9	19.2	19.1
14	17.8	17.1	17.3	18.0	17.2	16.5	15.9	15.6	15.8	16.6	17.4	18.0	19.3	20.1	20.1
15	19.0	18.7	18.0	17.9	17.4	16.9	16.8	15.9	15.4	15.8	16.8	17.0	17.9	18.9	19.1
16	17.9	18.0	18.5	17.8	17.1	17.1	16.7	16.9	16.1	15.9	15.6	15.9	17.2	18.0	17.9
17	18.1	18.0	17.9	18.0	17.9	17.7	18.3	17.6	16.5	15.9	16.7	17.7	18.4	19.2	
18*	18.1	18.1	18.1	17.8	17.1	16.5	17.2	16.2	15.4	15.8	16.0	17.3	18.1	19.0	
19	18.1	18.1	18.1	18.1	18.0	17.2	16.2	16.0	16.8	17.2	17.7	18.0	18.3	18.4	18.4
20	16.9	17.0	15.7	17.1	17.1	17.1	17.1	17.1	16.7	17.9	18.1	18.0	18.1	18.1	18.9
21	17.4	17.1	17.5	17.2	18.1	17.1	17.1	17.1	17.0	17.0	17.3	18.1	17.7	18.5	18.1
22*	18.1	18.1	19.0	18.5	17.1	17.1	16.3	15.0	14.9	14.7	15.3	16.8	18.0	19.1	19.2
23*	18.4	18.1	18.1	18.1	18.0	17.7	17.1	17.0	16.0	15.3	15.6	17.0	18.7	20.1	20.2
24*	18.3	18.3	18.3	18.0	17.5	17.2	17.0	16.2	15.0	15.0	16.0	18.5	20.1	20.6	20.2
25*	18.4	18.2	18.2	18.1	17.9	17.4	16.1	15.0	14.0	14.9	17.2	19.8	21.8	22.6	22.2
26	18.5	18.4	18.2	18.2	18.0	17.6	16.8	15.1	14.0	14.2	15.5	17.2	19.4	21.4	
27	17.1	17.0	16.9	18.4	17.1	16.9	16.7	16.0	14.6	14.0	15.9	17.7	20.0	21.7	21.4
28	16.1	12.8	10.5	13.7	17.2	17.1	16.8	15.3	17.3	16.3	16.1	18.2	18.7	19.3	20.1
29	16.5	16.9	17.0	18.2	20.2	22.3	21.3	17.1	15.3	14.0	15.0	17.2	19.3	20.5	20.5
30	18.2	18.2	18.2	18.2	18.1	18.2	17.7	17.1	16.1	16.4	17.6	19.8	21.4	22.6	22.9
31	17.1	18.4	16.1	16.8	16.9	16.6	16.3	16.4	15.1	16.0	15.6	18.7	20.3	21.6	22.2
Mean.....	17.7	17.6	17.4	17.5	17.4	17.3	17.1	16.5	15.9	15.9	16.3	17.2	18.1	18.9	19.1
Mean*...	18.1	18.0	17.9	17.7	17.2	17.0	16.8	16.2	15.7	15.8	16.2	17.2	18.2	18.8	18.9

APRIL, 1910.

2° WEST PLUS TABULAR MINUTES.

1	18.0	18.2	16.7	17.3	17.3	16.9	18.1	18.2	15.3	14.3	14.4	16.1	18.5	19.6	20.2
2	19.0	18.2	18.3	18.3	18.2	18.2	17.3	16.2	16.0	15.8	16.2	16.8	17.5	19.4	20.3
3	18.1	18.3	18.6	18.3	18.2	18.1	17.2	16.2	17.0	17.3	18.5	19.3	19.4	19.7	20.2
4	18.7	18.7	17.3	17.3	18.9	19.6	19.3	17.0	16.9	16.2	17.1	18.0	20.6	21.5	21.5
5*	18.3	18.3	18.3	18.3	18.3	18.0	17.1	15.8	15.5	16.1	17.2	18.3	20.3	20.6	20.3
6	18.3	18.3	18.3	18.2	17.9	17.5	16.4	16.1	16.1	16.2	17.2	18.8	20.7	21.4	20.4
7*	18.8	18.3	18.3	18.2	18.2	17.8	17.3	17.0	16.6	16.7	17.7	19.5	21.3	21.5	21.0
8*	18.3	18.3	18.0	18.2	17.7	17.3	16.4	16.4	16.9	17.1	17.4	18.3	19.3	20.1	19.8
9*	19.0	18.4	18.4	18.7	18.2	17.7	16.1	15.3	15.6	16.9	18.3	20.1	21.4	21.4	20.5
10*	18.9	18.6	18.6	18.4	18.3	17.7	16.6	16.3	16.3	16.9	18.3	19.5	21.9	22.6	21.8
11*	19.2	19.0	18.7	18.4	18.4	17.6	16.3	15.6	16.2	17.2	18.4	20.8	23.7	24.4	23.6
12	17.8	17.4	17.4	19.5	17.4	16.6	15.2	13.7	15.4	16.3	18.4	20.8	22.5	23.6	22.8
13	19.2	19.0	18.4	18.4	19.3	18.4	17.0	15.8	15.4	16.1	16.6	18.4	20.5	21.6	21.7
14*	19.1	19.4	19.3	18.6	18.4	18.2	17.4	16.5	16.3	16.2	16.5	18.2	19.5	20.3	20.5
15*	18.9	18.8	18.7	18.7	18.6	18.4	17.9	17.4	16.6	16.3	16.7	17.9	19.1	20.4	20.7
16	18.4	18.3	18.2	18.3	18.3	18.1	17.1	17.1	17.1	16.8	17.6	18.6	20.4	21.4	21.6
17	18.4	19.7	18.0	17.9	18.1	17.5	16.4	17.5	18.3	18.5	19.1	20.3	21.7	21.7	21.8
18	14.3	16.8	18.2	16.3	16.4	16.4	15.4	15.4	15.7	18.5	18.5	18.7	20.3	20.6	20.9
19	20.8	18.5	18.5	19.4	18.4	17.6	17.5	17.5	17.5	17.3	17.4	18.1	19.5	20.2	20.5
20*	19.4	18.8	18.8	19.6	18.9	17.5	16.8	17.4	17.7	17.9	18.5	19.6	21.0	21.7	21.6
21	19.1	18.8	19.4	18.5	18.4	17.8	16.7	17.4	17.4	17.7	19.3	19.9	20.8	21.5	21.6
22	19.3	19.1	18.8	18.4	18.0	17.5	16.4	17.4	17.5	17.5	18.0	19.5	20.9	22.4	22.0
23	18.9	18.4	18.5	19.3	18.5	17.5	16.6	15.7	14.3	15.6	17.4	18.5	20.6	21.8	21.7
24	19.2	18.5	18.5	19.6	18.4	19.4	17.9	16.6	16.1	16.4	17.6	19.5	20.6	21.6	21.4
25*	19.1	18.5	18.9	18.5	18.5	18.0	17.4	17.4	17.5	18.4	18.9	19.3	20.1	20.6	20.6
26	19.5	19.4	18.8	19.4	18.4	17.7	17.5	17.5	17.6	17.6	18.4	18.7	19.6	20.6	21.0
27	19.6	15.4	16.4	16.1	17.4	17.3	17.1	16.4	16.2	17.3	19.0	20.9	20.6	21.5	
28	19.7	18.5	18.3	18.5	19.5	18.3	17.5	17.4	16.4	16.4	17.3	19.3	19.7	21.4	21.9
29	18.7	19.9	18.9	19.4	19.5	19.8	19.6	18.5	17.5	18.4	18.5	19.6	21.3	21.5	21.4
30	19.7	17.7	18.7	17.6	17.8	17.3	16.4	16.8	18.4	19.6	20.5	20.8	21.7	20.9	20.2
Mean.....	18.8	18.4	18.3	18.4	18.3	17.8	17.0	16.6	16.6	17.0	17.9	19.1	20.5	21.2	21.2
Mean*...	18.9	18.6	18.6	18.6	18.4	17.8	16.9	16.5	16.5	17.0	17.8	19.2	20.8	21.4	21.0

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

35

MARCH, 1910.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day		
18.2	18.6	19.0	18.1	17.8	17.7	17.1	17.2	17.0	17.0	18 00	19.0	10 21	14.7	4.3	1
19.2	18.9	18.7	18.1	17.9	17.7	17.2	17.1	17.3	17.5	16 00	19.2	11 22	15.8	3.4	2
18.1	18.1	18.3	18.1	17.9	17.8	17.5	17.0	16.8	17.3	7 41	19.1	12 00	15.8	3.3	3
18.9	19.1	18.1	17.8	17.9	17.5	17.0	17.1	17.4	17.2	17 00	19.1	12 09	14.9	4.2	4
17.8	18.1	18.7	18.2	16.9	16.9	17.8	17.7	17.6	17.3	13 32	18.3	10 23	15.7	2.6	5
17.0	18.1	17.4	17.2	17.5	17.0	17.0	18.1	17.7	17.1	23 08	18.7	11 00	15.8	2.9	6
16.8	16.9	17.9	17.9	17.5	17.8	18.1	17.7	17.5	17.5	2 14	19.7	16 00	16.8	2.9	7
16.8	17.6	17.9	18.1	17.9	17.7	17.6	17.1	17.6	17.1	1 18	17.8	14 00	16.3	1.5	8
17.0	17.2	17.9	17.9	17.9	18.0	17.9	17.9	17.4	17.3	0 42	18.0	5 03	16.1	1.9	9
18.0	17.9	18.0	17.7	17.9	17.9	17.9	17.8	17.3	17.3	15 00	18.2	9 00	15.9	2.3	10
18.0	18.0	18.0	17.7	17.0	17.8	18.0	18.0	18.0	17.3	15 00	18.2	9 48	15.7	2.5	11
18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	17.6	14 00	18.9	9 17	15.9	3.0	12
18.8	18.4	18.3	18.0	18.0	16.2	17.0	17.7	17.6	17.3	14 30	19.3	8 49	14.4	4.9	13
19.4	19.1	18.0	18.0	17.9	17.3	17.6	17.9	18.0	17.7	14 09	20.3	8 25	15.1	5.2	14
19.3	19.4	18.7	18.2	18.0	17.9	17.9	17.8	17.0	17.7	16 20	19.7	8 47	15.1	4.6	15
18.6	18.5	18.5	18.4	18.0	17.3	17.0	17.6	17.8	17.4	16 30	18.9	9 42	15.3	3.6	16
19.2	18.7	19.1	19.0	18.8	18.1	18.1	18.1	18.0	18.0	15 46	20.0	10 15	15.8	4.2	17
18.5	18.3	18.1	18.6	18.6	18.4	18.3	18.1	18.1	17.6	14 32	19.1	8 59	15.3	3.8	18
18.5	19.0	18.4	17.6	18.1	18.1	17.9	17.1	17.8	17.8	17 00	19.0	8 28	15.9	3.1	19
19.2	19.2	19.0	18.0	18.0	16.9	17.0	17.2	17.2	17.6	16 00	19.2	8 54	16.4	2.8	20
18.1	18.1	18.3	18.1	18.1	17.7	18.1	18.3	18.4	17.7	14 00	18.5	9 00	17.0	1.5	21
18.9	18.5	18.1	18.5	18.1	18.1	18.3	18.4	18.4	17.6	3 24	20.0	8 33	14.2	5.8	22
19.7	19.3	19.1	18.7	18.8	18.4	18.4	18.5	18.4	18.1	15 00	20.2	10 35	15.2	5.0	23
19.8	19.2	19.0	18.5	18.3	18.1	18.1	18.1	18.1	18.1	14 00	20.6	10 00	15.0	5.6	24
20.7	19.3	19.1	18.7	18.6	18.5	18.6	18.4	18.4	18.4	14 00	22.6	9 00	14.0	8.6	25
20.5	19.4	19.2	19.1	18.6	18.4	17.8	17.7	18.0	18.0	14 00	21.4	9 00	14.0	7.4	26
21.1	21.0	18.4	19.5	17.9	16.4	13.2	14.8	15.9	17.5	13 56	22.3	10 00	14.0	8.3	27
20.3	15.8	18.1	18.2	17.6	17.8	16.6	17.3	17.3	16.9	16 00	20.3	2 51	10.2	10.1	28
19.5	18.7	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	6 00	22.3	10 00	14.0	8.3	29
22.0	20.5	19.3	16.1	18.0	17.2	17.2	16.3	16.3	18.5	14 24	23.0	18 50	15.9	7.1	30
21.4	19.2	18.2	18.1	18.1	17.4	18.2	18.0	17.4	17.9	15 00	22.2	21 15	14.3	7.9	31
18.9	18.6	18.4	18.1	18.0	17.7	17.6	17.6	17.6	17.6					4.6	
18.5	18.3	18.3	18.2	18.1	18.1	18.1	18.0	18.0	17.6					4.0	

APRIL, 1910.

2° WEST PLUS TABULAR MINUTES.

20.4	18.6	18.6	16.4	17.3	18.3	16.0	17.2	17.3	17.5	16 00	20.4	10 33	14.1	6.3	1
20.4	18.3	18.3	18.5	18.3	18.3	18.3	18.3	18.3	18.0	15 30	20.6	9 45	15.6	5.0	2
20.3	19.4	18.8	18.7	18.7	18.5	17.6	17.5	18.5	18.4	16 00	20.3	8 00	16.2	4.1	3
20.3	19.4	18.3	17.3	18.2	17.9	18.2	18.3	18.3	18.6	14 17	21.7	8 53	16.0	5.7	4
19.7	19.3	18.7	18.8	18.3	18.2	18.2	18.2	18.3	18.3	14 00	20.6	8 24	15.2	5.4	5
19.4	18.5	18.2	18.5	18.8	18.3	18.5	18.6	18.6	18.3	13 33	21.5	7 39	16.0	5.5	6
19.5	18.7	18.5	18.5	18.5	18.9	19.0	18.9	18.3	18.6	14 00	21.5	9 24	16.5	5.0	7
19.1	18.3	18.3	18.5	18.9	18.3	18.5	18.6	18.6	18.2	14 37	20.3	8 00	16.4	3.9	8
19.4	18.4	18.4	18.7	19.1	19.2	19.3	19.0	19.0	18.6	13 17	21.5	8 00	15.3	6.2	9
20.3	18.4	18.3	18.4	18.4	18.9	19.0	19.1	19.3	18.8	14 00	22.6	9 21	16.2	6.4	10
21.6	19.5	18.4	18.4	17.8	18.3	18.4	18.4	18.4	19.0	14 00	24.4	8 00	15.6	8.8	11
21.3	19.5	18.7	18.4	18.4	18.6	18.7	19.1	19.1	18.6	14 00	23.6	8 00	13.7	9.9	12
20.5	19.5	18.7	18.4	18.4	18.8	19.0	19.1	19.3	18.6	14 26	21.8	9 00	15.4	6.4	13
20.3	19.5	19.3	19.3	19.4	19.3	18.6	18.9	18.9	18.7	15 00	20.5	10 00	16.2	4.3	14
20.5	19.5	19.4	19.4	19.3	18.7	18.8	19.1	18.7	18.7	15 14	20.8	10 00	16.3	4.5	15
20.7	19.7	19.4	19.4	19.4	19.1	18.4	18.7	19.5	18.8	15 00	21.6	10 00	16.8	4.8	16
20.9	20.2	19.6	19.6	19.6	19.4	18.5	19.0	19.4	19.1	15 00	21.8	6 54	16.4	5.4	17
20.1	19.6	19.5	19.0	19.4	19.3	18.3	19.6	19.4	18.2	14 45	21.3	1 00	14.3	7.0	18
19.6	19.3	19.2	19.4	19.0	18.7	19.4	19.4	19.5	18.8	1 00	20.8	9 39	17.1	3.7	19
20.6	19.5	19.1	19.4	19.4	19.4	19.4	19.4	19.3	19.2	14 00	21.7	7 00	16.8	4.9	20
20.6	19.6	19.6	19.6	19.6	19.6	19.5	19.5	19.5	19.2	15 00	21.6	7 16	16.4	5.2	21
20.8	19.9	19.7	19.6	19.4	18.5	19.0	19.4	19.8	19.1	14 17	22.6	7 00	16.4	6.2	22
21.3	20.5	18.2	18.7	18.5	17.8	19.0	19.1	19.6	18.6	14 04	21.9	9 00	14.3	7.6	23
20.3	19.6	19.5	19.0	18.8	18.0	18.4	18.5	19.6	18.9	14 00	21.6	9 00	16.1	5.5	24
19.7	19.6	19.5	19.6	19.6	19.5	19.5	19.5	19.5	19.1	14 00	20.6	6 55	17.2	3.4	25
20.6	20.5	20.6	19.6	19.7	19.6	19.6	19.6	18.4	19.2	14 35	21.5	7 15	17.4	4.1	26
19.8	19.6	19.9	19.6	19.5	18.3	17.7	18.4	18.5	18.5	14 33	21.7	8 39	15.4	6.3	27
20.9	20.2	19.8	17.5	18.0	18.9	19.6	19.5	19.6	18.9	15 00	21.9	9 55	16.0	5.9	28
20.5	19.7	19.6	18.7	19.7	18.9	19.1	19.5	18.4	19.4	13 36	21.7	9 00	17.5	4.2	29
19.9	19.4	19.0	19.0	18.8	18.8	18.5	19.5	18.5	19.0	13 00	21.7	7 22	15.9	5.8	30
20.3	19.4	19.0	18.8	18.9	18.9	18.9	18.9	18.8	18.7					5.6	
20.1	19.1	18.8	18.9	18.9	18.9	18.9	18.9	18.9	18.7					5.3	

## PORTO RICO MAGNETIC OBSERVATORY.

MAY, 1910.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	18.5	18.5	18.8	18.8	18.3	17.9	17.8	19.4	19.5	19.8	19.7	20.3	20.5	20.4	20.3
2	19.3	19.1	19.9	19.5	18.5	17.9	17.6	18.3	20.1	21.6	21.9	22.4	22.7	22.7	21.3
3	18.5	18.5	18.7	18.5	18.3	17.7	17.6	18.5	19.6	19.6	20.0	20.5	21.3	21.7	21.5
4*	19.6	18.7	18.5	19.1	18.3	17.5	17.5	17.5	18.5	19.5	20.5	20.8	22.7	23.7	22.6
5*	19.2	19.5	19.4	18.7	18.5	17.8	17.5	17.5	18.3	19.8	20.9	21.6	22.3	22.6	22.2
6*	19.4	19.1	18.9	19.0	18.5	18.5	17.6	17.7	18.5	19.6	19.7	19.8	20.5	20.6	20.5
7*	19.5	18.5	18.5	18.7	18.5	18.4	18.0	17.4	18.0	19.5	19.6	20.3	21.0	21.7	21.7
8*	19.4	19.6	19.5	19.6	18.5	18.7	17.7	17.5	17.5	18.2	18.7	19.6	20.5	20.8	21.5
9	19.2	19.3	19.1	19.3	18.8	18.7	18.0	17.5	17.5	18.3	19.5	20.5	21.7	22.7	22.7
10	18.4	18.5	17.8	19.2	18.7	18.5	18.1	17.6	17.8	18.1	18.4	19.1	20.4	21.5	21.7
11	17.7	18.5	18.7	18.7	18.5	18.4	17.6	17.8	17.7	18.8	19.6	20.5	21.0	21.6	21.5
12	19.6	19.6	19.5	19.6	18.9	18.3	17.4	16.7	18.0	19.4	20.6	21.1	21.6	21.6	21.7
13	18.4	18.5	18.8	18.5	18.5	18.5	18.5	19.6	20.9	20.2	21.5	21.7	21.6	21.7	21.2
14	19.6	20.3	20.5	20.1	19.2	19.0	16.9	16.4	18.1	20.3	20.8	21.2	21.7	21.4	21.1
15	19.2	19.5	19.4	20.6	19.4	18.5	18.3	17.7	18.5	20.6	21.8	22.4	22.7	22.7	22.0
16	19.6	19.5	19.5	18.9	18.7	17.4	17.4	17.5	17.6	19.1	20.4	20.4	20.6	20.6	20.8
17	19.6	19.4	19.6	21.6	20.0	19.6	18.2	17.8	18.9	19.6	20.2	20.6	20.5	20.6	20.6
18	19.6	18.8	18.8	19.4	18.8	18.0	17.5	19.0	19.6	20.0	20.4	21.0	20.6	21.6	21.7
19	18.2	18.5	18.5	18.4	18.2	15.5	14.2	16.2	17.8	21.6	22.6	22.7	22.7	22.6	21.6
20*	19.7	19.6	19.4	18.7	18.7	18.0	16.6	17.3	18.5	18.4	19.7	21.4	21.3	20.9	21.6
21*	19.6	20.3	19.3	18.7	18.2	17.4	17.0	18.5	20.8	21.7	22.5	22.7	23.1	23.0	22.4
22*	19.6	19.6	19.0	18.5	18.0	17.4	17.2	17.7	19.6	21.7	22.7	23.3	21.8	21.7	21.1
23*	19.6	19.5	18.8	18.5	18.2	16.8	15.4	15.7	17.5	19.6	21.5	21.7	21.5	20.6	20.6
24	19.6	19.0	19.0	17.7	17.0	16.4	16.4	19.6	21.7	21.9	21.2	21.2	21.1	22.6	24.0
25	19.1	18.4	18.1	19.6	18.4	17.4	16.2	16.3	17.1	18.8	20.5	21.3	22.2	22.7	22.6
26	19.6	21.6	19.5	19.5	18.5	17.2	16.3	15.7	16.2	17.3	18.0	19.1	19.5	20.6	21.6
27*	19.6	19.6	20.3	19.1	19.1	17.8	17.7	16.7	17.6	19.4	20.5	21.6	21.9	22.6	22.4
28	19.4	19.8	20.0	19.5	19.0	18.4	18.4	17.4	17.1	17.3	18.0	19.6	21.1	22.1	22.7
29	19.5	19.1	19.5	19.5	19.4	18.3	17.9	17.5	17.8	18.1	17.7	18.4	18.7	19.6	20.6
30	19.7	19.6	19.5	19.6	18.5	17.9	17.5	18.0	20.3	21.6	21.6	21.2	21.7	21.7	21.6
31	18.3	19.0	19.0	18.9	18.0	17.9	14.8	14.9	16.6	18.3	20.1	21.6	22.6	22.5	22.5
Mean....	19.2	19.3	19.2	19.2	18.6	18.0	17.2	17.5	18.5	19.6	20.4	21.0	21.4	21.7	21.7
Mean*....	19.5	19.4	19.2	18.9	18.4	17.8	17.2	17.4	18.5	19.7	20.6	21.2	21.7	21.8	21.7

JUNE, 1910.

2° WEST PLUS TABULAR MINUTES.

1	19.7	19.7	19.7	19.7	19.1	18.5	17.5	17.6	18.4	18.6	18.6	18.6	19.3	19.7	19.7
2	20.4	20.1	19.9	19.7	19.6	18.6	17.6	17.2	18.3	19.7	21.1	21.8	22.5	22.8	22.6
3*	20.2	19.9	19.7	19.6	18.9	17.9	16.5	17.4	18.4	19.6	20.7	21.9	22.6	21.9	21.5
4*	20.3	19.7	19.6	19.5	18.9	18.5	17.7	18.8	20.7	21.7	22.6	22.5	22.1	21.4	20.6
5*	20.0	19.7	19.7	19.5	19.4	17.9	16.8	17.5	19.6	21.7	22.8	22.8	22.6	21.8	21.4
6	20.0	19.7	19.7	19.7	19.3	17.6	15.6	15.4	17.4	18.5	19.6	20.4	20.0	20.6	21.4
7*	19.8	19.7	19.6	19.5	19.4	17.9	16.8	16.2	16.5	17.5	18.5	19.7	21.1	21.0	21.3
8	19.8	20.1	19.9	19.7	19.2	18.6	16.6	16.6	18.3	19.6	21.7	23.3	24.1	24.0	22.8
9	19.8	19.2	19.7	21.5	19.7	21.1	19.9	19.7	19.6	20.6	21.0	21.0	21.9	22.9	22.9
10	20.6	20.5	20.7	20.7	20.5	18.7	17.3	16.5	18.6	19.8	21.8	22.1	22.9	23.4	22.8
11	20.4	19.9	20.6	20.6	20.1	20.5	19.0	16.8	17.6	17.2	16.9	18.3	18.7	19.8	20.8
12	20.6	20.5	20.6	21.1	20.7	19.4	17.7	17.2	18.1	18.7	19.8	21.1	21.9	22.9	23.4
13	20.6	20.1	20.4	19.8	20.3	19.9	19.5	18.7	19.5	20.7	20.8	21.7	22.0	23.2	22.8
14*	20.5	20.3	20.0	19.8	19.8	18.7	17.7	17.5	17.8	18.9	19.8	20.7	21.7	21.9	21.8
15*	20.4	20.2	20.0	19.9	19.9	19.2	18.7	18.3	18.8	19.2	19.6	20.0	20.9	21.6	21.2
16*	20.7	20.6	20.3	20.1	19.9	18.8	17.5	16.9	18.2	19.3	20.9	22.5	22.9	22.7	22.0
17*	20.5	20.1	19.9	19.9	19.8	18.2	16.7	16.9	18.5	19.0	19.6	20.7	21.3	21.4	21.9
18*	20.8	20.6	19.9	19.9	19.5	17.8	16.6	16.4	17.1	18.6	19.8	20.9	21.8	21.6	21.9
19	20.7	20.6	20.0	19.8	19.6	18.6	16.7	16.6	17.8	17.8	20.0	21.5	22.9	23.3	23.6
20	19.4	19.8	18.6	19.4	18.8	16.7	15.5	15.8	16.9	18.1	21.7	23.0	25.9	25.5	27.2
21	19.9	19.9	19.9	19.4	18.8	18.1	17.8	17.5	17.8	18.2	19.3	20.6	22.2	23.9	24.1
22	20.7	20.0	20.7	20.0	19.8	18.8	17.9	18.2	18.4	19.9	21.4	22.3	22.9	23.0	23.0
23	20.1	20.0	20.7	20.0	20.3	18.9	18.5	18.7	18.9	19.8	20.9	22.0	22.1	22.0	22.1
24	20.8	20.5	20.8	20.2	20.0	18.9	18.9	18.9	19.7	20.0	20.0	20.0	20.1	21.0	21.3
25	20.0	20.1	20.0	20.9	20.6	20.8	18.8	18.7	19.2	19.8	20.0	20.9	21.8	22.1	22.1
26	20.0	20.0	20.0	20.8	21.0	18.9	17.7	16.5	18.0	20.0	21.6	22.6	22.3	24.1	23.1
27	20.8	21.0	20.0	19.9	19.6	18.3	17.3	16.7	17.2	18.1	19.7	20.9	22.0	22.6	22.3
28*	20.7	20.9	20.8	20.3	20.0	18.9	17.7	17.8	18.1	19.2	20.1	22.0	23.1	24.1	24.0
29	21.0	20.4	21.0	20.8	20.1	19.6	18.2	18.2	17.8	18.1	19.7	20.2	22.0	23.2	24.1
30	21.1	21.0	21.1	20.8	20.6	20.1	19.7	18.5	19.9	20.6	21.3	21.6	22.0	22.0	21.4
Mean....	20.3	20.2	20.1	20.1	19.8	18.8	17.7	17.5	18.4	19.3	20.4	21.3	22.0	22.4	22.4
Mean*....	20.4	20.2	20.0	19.8	19.6	18.4	17.3	17.4	18.4	19.5	20.4	21.4	22.0	21.9	21.8

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

37

MAY, 1910.

2°, WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day		
'	'	'	'	'	'	'	'	'	'	'	'	'	'		
19.8	19.8	19.9	19.6	19.6	19.4	19.5	19.4	19.4	19.4	12 27	20.6	6 32	17.7	2.9	1
20.4	19.7	19.5	18.7	19.4	18.5	17.4	19.4	18.5	19.8	14 00	22.7	6 24	17.0	5.7	2
20.4	19.6	19.7	19.6	19.6	19.6	19.5	19.3	19.4	19.5	14 00	21.7	6 31	17.4	4.3	3
21.3	20.5	19.5	19.6	19.6	19.5	19.4	19.4	19.7	19.7	13 41	23.8	7 45	17.1	6.7	4
21.6	20.5	20.4	20.2	19.6	19.6	19.6	19.6	19.6	19.9	14 00	22.6	7 18	17.4	5.2	5
20.5	20.4	20.5	19.6	19.6	19.8	19.5	19.6	19.5	19.5	14 00	20.6	7 26	17.5	3.1	6
20.8	19.8	19.7	19.6	19.6	19.6	19.6	19.6	19.6	19.5	14 00	21.7	8 18	17.1	4.6	7
20.6	20.0	19.8	19.6	19.7	19.6	19.5	19.6	19.6	19.4	15 00	21.5	8 00	17.5	4.0	8
21.5	20.6	20.5	19.6	19.6	19.5	19.4	18.4	19.6	19.6	13 51	22.9	8 00	17.5	5.4	9
21.6	20.6	20.3	19.7	19.6	19.6	18.5	18.5	18.5	19.2	15 00	21.7	8 00	17.6	4.1	10
21.5	21.2	19.8	19.6	19.7	19.7	19.6	19.0	19.4	19.4	14 00	21.6	7 08	17.6	4.0	11
21.0	20.6	20.4	20.3	20.2	19.9	19.6	18.5	19.7	15 00	21.7	7 42	16.4	5.3	12	
20.5	20.6	20.0	19.6	19.6	19.4	19.6	19.6	19.6	19.9	13 55	21.8	7 36	17.5	4.3	13
20.5	19.9	19.6	19.6	19.4	18.3	18.7	19.5	19.6	19.7	13 00	21.7	8 00	16.4	5.3	14
21.2	20.5	19.7	19.6	19.5	19.5	19.6	21.0	20.1	20.1	14 00	22.7	7 37	17.5	5.2	15
20.6	20.2	19.6	20.0	20.1	19.9	19.6	18.8	19.6	19.5	15 00	20.8	7 36	17.2	3.6	16
20.5	20.3	20.5	20.5	20.5	19.5	19.5	19.5	19.5	19.9	4 00	21.6	7 45	17.5	4.1	17
20.9	20.4	19.7	19.6	19.3	19.6	19.5	18.4	18.5	19.6	14 24	21.8	7 00	17.5	4.3	18
19.9	18.5	18.5	19.5	19.5	19.6	19.6	19.6	19.6	19.3	13 00	22.7	7 27	12.9	9.8	19
21.0	20.6	20.1	19.6	20.2	19.8	19.6	19.9	19.6	19.6	15 00	21.6	7 28	16.3	5.3	20
20.5	19.6	19.6	19.7	19.8	19.6	19.7	19.6	19.6	20.1	13 24	23.6	7 08	17.0	6.6	21
20.5	19.7	19.7	20.2	20.5	20.5	20.4	20.3	19.8	20.0	11 00	22.7	6 42	16.7	6.0	22
20.2	20.4	20.3	20.5	20.3	20.5	20.4	19.9	19.6	19.5	12 00	21.7	7 00	15.4	6.3	23
23.8	21.9	21.6	21.7	18.0	18.5	17.5	20.1	18.3	20.0	15 44	24.7	6 44	15.4	9.3	24
22.6	20.5	20.4	20.5	20.4	19.6	19.4	19.6	19.8	19.6	13 55	23.0	6 37	15.7	7.3	25
21.4	20.8	20.6	20.1	20.0	18.7	19.4	19.5	20.5	19.2	1 58	21.7	7 09	15.4	6.3	26
21.9	21.5	20.6	20.3	19.7	19.5	19.5	19.6	19.6	19.9	14 34	22.7	7 30	16.3	6.4	27
23.5	21.7	21.6	21.0	20.5	19.6	20.3	19.6	19.6	20.0	16 00	23.5	8 14	16.4	7.1	28
21.3	20.8	20.6	20.5	20.4	20.1	19.8	19.6	19.6	19.3	16 00	21.3	8 00	17.5	3.8	29
21.5	20.6	19.6	20.4	20.3	20.5	19.0	18.5	20.0	14 00	21.7	7 26	17.0	4.7	30	
22.0	21.7	21.5	20.6	20.8	20.5	19.8	19.6	20.6	19.7	13 26	22.9	7 34	14.3	8.6	31
21.1	20.4	20.2	19.9	19.8	19.6	19.5	19.5	19.4	19.7					5.5	
20.9	20.3	20.0	19.9	19.9	19.8	19.7	19.7	19.6	19.7					5.4	

JUNE, 1910.

2° WEST PLUS TABULAR MINUTES.

19.7	20.0	20.6	20.7	20.7	20.7	20.5	20.4	20.4	19.5	20.00	20.7	7 42	17.1	3.6	1
19.7	20.0	20.6	20.7	20.7	20.7	20.5	20.4	20.5	19.5	20.00	22.8	7 48	16.7	6.1	2
20.7	20.5	20.5	20.6	20.7	20.6	20.4	20.1	20.1	20.0	13 00	22.6	7 16	16.5	6.1	3
19.7	19.7	20.5	20.5	20.5	20.6	20.7	20.6	20.5	20.3	11 24	22.7	7 00	17.7	5.0	4
20.5	19.9	20.5	20.7	20.7	20.7	20.5	20.0	20.0	20.3	12 00	22.8	7 57	16.7	6.1	5
21.0	20.6	20.6	20.9	20.7	20.6	20.4	19.9	19.6	19.6	15 19	21.6	7 44	15.0	6.6	6
21.0	20.9	21.4	21.3	20.9	20.7	20.6	20.6	20.7	19.6	13 21	21.6	8 00	16.2	5.4	7
22.1	21.9	21.1	20.8	20.7	20.8	20.7	19.9	19.7	20.5	13 22	24.3	7 32	15.9	8.4	8
22.2	21.6	20.7	20.7	19.8	20.1	20.6	20.4	19.9	20.6	14 34	23.1	8 34	18.7	4.4	9
21.9	21.1	20.7	20.8	20.7	20.6	20.3	19.8	20.6	13 55	23.5	7 45	15.8	7.7	10	
21.1	20.8	20.8	20.8	20.7	20.6	20.5	20.5	20.5	19.7	16 51	22.0	8 00	16.8	5.2	11
23.2	21.9	21.1	20.8	20.7	20.7	20.6	20.5	20.6	20.6	15 16	23.7	8 00	17.2	6.5	12
21.8	20.7	20.4	20.8	20.8	20.7	20.6	20.5	20.7	13 51	23.3	8 00	18.7	4.6	13	
21.1	21.0	20.8	20.7	20.8	20.8	20.7	20.6	20.2	14 00	21.9	7 34	17.4	4.5	14	
20.8	20.9	20.9	21.1	20.9	20.8	20.8	20.7	20.7	20.2	14 00	21.6	7 33	18.0	3.6	15
20.9	20.8	20.9	21.1	21.3	21.5	20.9	20.8	20.7	20.5	12 37	23.0	7 48	16.7	6.3	16
21.1	20.7	20.9	21.4	21.2	21.2	20.9	20.9	20.8	20.1	15 00	21.9	7 24	16.5	5.4	17
21.8	21.2	21.2	21.1	21.1	20.9	20.9	20.9	20.8	20.1	15 14	22.0	7 40	16.2	5.8	18
23.0	22.5	22.1	22.0	21.9	21.6	19.9	20.1	18.6	20.5	14 49	23.9	7 31	16.5	7.4	19
24.1	22.1	21.9	22.1	21.9	20.9	20.9	20.8	20.1	20.7	15 34	27.9	6 52	13.9	14.0	20
23.2	23.2	21.1	21.9	17.8	20.5	20.3	20.5	20.4	20.3	15 13	24.3	6 47	17.2	7.1	21
22.2	21.3	21.5	21.3	20.9	20.0	20.0	20.0	20.6	14 53	23.3	7 31	17.8	5.5	22	
22.6	22.3	22.1	22.0	20.4	21.0	20.9	20.9	20.8	20.8	16 00	22.6	7 04	18.6	4.0	23
21.7	21.6	21.7	21.3	21.0	20.9	20.9	20.8	20.2	20.5	16 00	21.7	7 41	18.4	3.3	24
22.1	21.4	21.8	21.9	21.9	21.7	21.0	20.1	19.8	20.7	15 18	22.4	7 43	18.0	4.4	25
22.4	22.8	21.7	21.0	21.2	21.2	21.0	20.9	20.8	20.8	13 47	24.3	7 21	16.3	8.0	26
22.1	22.1	22.0	22.1	21.9	21.4	21.2	20.9	20.8	20.5	14 00	22.6	8 00	16.7	5.9	27
23.1	22.3	22.1	22.0	21.9	21.3	21.2	21.0	20.9	21.0	14 00	24.1	7 49	17.6	6.5	28
24.2	23.0	22.3	22.2	22.2	22.1	21.6	21.4	21.3	21.0	15 17	24.3	8 27	17.3	7.0	29
21.1	21.3	21.6	22.1	22.0	21.4	21.3	21.1	21.0	21.0	12 28	22.1	7 38	18.1	4.0	30
21.8	21.4	21.2	21.2	21.0	21.0	20.8	20.6	20.3	20.4					6.0	
21.1	20.8	21.0	21.0	21.0	20.9	20.8	20.6	20.4	20.2					5.5	

## PORTO RICO MAGNETIC OBSERVATORY.

JULY, 1910

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1*	20.8	21.0	21.1	20.6	20.1	19.5	18.9	19.0	20.3	21.0	21.4	21.8	22.2	23.1	23.2
2*	21.0	20.9	21.0	20.8	20.1	19.2	18.0	17.9	18.8	19.4	20.3	21.7	22.1	23.1	22.9
3	20.9	20.4	20.4	20.2	20.9	19.0	17.7	17.8	20.1	21.0	22.5	24.2	23.9	22.9	22.0
4	21.1	21.1	21.0	20.8	20.3	19.0	16.8	16.8	18.0	19.0	20.4	21.4	22.3	22.7	22.5
5	20.1	20.6	21.1	20.1	20.3	18.0	16.0	15.1	16.8	18.9	21.6	22.3	23.2	24.3	23.2
6	21.5	22.1	23.3	21.2	19.9	18.1	16.1	16.2	17.7	20.1	21.9	23.1	23.7	23.6	23.1
7	22.2	21.0	22.4	21.3	20.4	19.3	18.0	17.3	19.3	20.4	23.2	24.4	24.7	24.5	23.6
8	21.5	21.4	21.6	22.3	21.2	19.3	18.0	17.0	17.9	18.2	19.1	20.4	22.2	23.3	24.1
9	22.3	21.8	21.2	21.4	22.2	19.9	17.3	16.1	17.0	18.8	20.7	22.3	23.5	24.4	24.5
10	21.1	21.0	21.5	23.2	21.4	20.2	18.4	18.1	19.0	20.1	21.0	22.5	24.3	23.7	23.7
11	22.1	22.2	23.3	22.4	21.5	20.2	18.5	18.8	20.2	21.1	22.1	23.1	23.3	23.7	24.3
12*	21.2	21.2	21.8	21.7	21.2	20.2	18.1	16.2	16.8	18.1	19.3	21.2	23.6	24.7	24.9
13*	21.3	21.3	21.5	21.3	21.2	20.3	19.2	18.3	18.9	20.0	20.3	21.2	21.3	22.3	22.1
14*	21.3	21.2	21.2	21.1	20.8	20.3	18.4	17.3	17.5	18.3	20.3	22.4	24.3	24.5	23.7
15*	21.0	20.8	20.5	20.3	20.3	20.3	19.1	17.1	17.3	18.1	19.1	20.4	22.2	23.7	23.9
16*	20.5	20.5	20.4	20.3	20.3	19.2	18.1	18.1	19.2	20.2	21.3	22.6	23.4	23.6	22.9
17	21.1	20.6	20.4	20.3	21.2	20.1	19.6	19.6	20.4	20.8	20.7	21.3	23.4	24.7	24.6
18	21.3	21.2	21.1	20.9	20.6	19.5	18.9	19.2	20.6	21.6	21.5	21.9	22.3	22.4	22.5
19	20.3	20.0	20.1	20.1	20.2	19.1	17.9	17.5	18.2	20.3	21.5	23.2	23.4	23.4	24.5
20*	21.2	21.1	21.1	20.6	20.5	19.7	18.3	17.5	19.1	21.7	23.5	24.6	25.0	24.3	23.0
21*	21.3	21.4	21.2	20.7	20.4	18.9	17.7	18.2	19.1	20.8	22.4	23.4	24.1	24.6	23.5
22	21.4	21.4	21.4	21.2	20.8	19.6	18.8	18.7	19.3	19.6	20.4	21.4	22.5	23.7	24.3
23	21.4	21.3	21.3	21.3	21.3	20.4	20.1	19.6	21.4	21.4	21.6	22.5	23.5	23.4	23.4
24	21.3	21.2	20.6	20.3	20.7	19.3	18.1	17.2	19.1	20.6	22.5	23.3	23.4	23.3	23.4
25	21.4	21.6	21.4	21.3	21.1	20.4	19.0	18.6	18.4	19.3	20.4	21.3	22.4	23.3	23.5
26	21.7	21.7	21.7	21.3	21.0	20.5	19.6	19.4	19.9	20.5	21.5	22.4	22.0	21.8	22.4
27*	21.5	21.5	21.5	21.4	21.4	21.0	20.5	19.4	20.0	20.6	21.4	22.4	22.6	22.8	23.5
28	21.5	21.5	21.5	21.4	21.1	20.4	19.1	19.4	20.6	22.3	23.0	23.8	24.6	23.8	23.8
29	21.7	21.7	21.8	21.8	21.3	22.6	20.6	19.3	19.8	21.2	21.1	20.6	21.9	22.8	23.0
30	21.7	21.7	21.7	21.5	20.8	20.6	19.0	17.7	18.7	20.1	21.5	22.6	22.7	23.5	23.5
31	21.7	22.4	22.6	21.7	22.1	21.0	19.3	19.4	20.7	21.8	22.6	22.7	22.9	24.0	24.6
Mean....	21.3	21.3	21.4	21.1	20.9	19.8	18.5	18.0	19.0	20.1	21.3	22.3	23.0	23.6	23.5
Mean*...	21.1	21.1	21.1	20.9	20.6	19.9	18.6	17.9	18.7	19.8	20.9	22.2	23.1	23.7	23.4

AUGUST, 1910.

2° WEST PLUS TABULAR MINUTES.

1	22.4	22.0	21.8	21.6	21.4	20.5	19.3	18.3	(18.9)	(20.0)	(21.2)	(22.6)	(23.1)	(24.1)	(24.1)
2	21.6	22.8	22.4	22.6	21.8	20.4	19.2	18.5	19.4	20.7	22.0	22.9	23.5	24.4	24.2
3	21.8	21.6	22.1	21.5	21.9	21.5	20.7	20.0	18.7	19.7	20.6	22.7	23.7	23.9	23.9
4	21.6	21.6	23.5	21.8	20.8	19.9	18.6	19.2	19.8	20.7	22.9	24.6	24.9	24.9	24.5
5	21.6	22.7	22.7	22.5	21.8	20.7	18.2	18.1	19.5	20.5	21.6	22.7	23.9	24.9	25.2
6*	21.9	22.3	22.5	22.0	21.6	20.6	18.5	17.4	17.7	19.0	20.2	21.5	23.0	24.3	24.6
7*	22.1	22.0	22.0	21.7	21.6	20.4	17.7	17.5	18.7	20.6	22.4	24.0	24.3	24.3	23.5
8*	22.3	22.7	22.4	21.9	21.7	20.8	19.0	18.7	19.4	20.8	22.8	24.0	24.8	25.0	24.4
9	22.1	21.9	21.7	21.6	21.2	20.1	17.7	16.3	16.5	20.7	23.2	23.6	25.0	25.0	24.0
10	20.2	18.5	22.8	20.0	20.8	20.3	19.8	16.5	16.5	18.5	19.8	20.3	22.2	24.1	24.9
11	21.7	21.7	21.6	21.6	20.9	20.0	18.6	18.5	19.6	20.7	21.6	22.7	23.6	23.6	23.5
12*	21.7	21.1	21.9	22.2	21.6	20.7	19.6	18.7	18.7	21.4	21.9	22.8	23.2	23.2	23.3
13*	22.9	22.0	21.8	21.1	20.9	20.8	19.7	19.3	20.8	22.4	23.0	23.2	23.9	23.5	23.0
14	22.0	22.0	21.8	21.2	20.9	20.1	18.3	17.9	17.8	20.9	22.1	23.1	24.8	25.1	25.0
15*	21.8	21.7	21.7	21.5	20.8	20.1	18.6	18.9	20.8	22.1	23.1	23.7	23.1	24.1	24.1
16*	21.8	21.8	21.7	21.4	20.9	20.7	19.7	20.7	21.8	23.1	24.1	24.6	24.3	24.1	23.8
17	22.1	22.1	22.0	21.8	21.4	20.2	17.6	17.1	18.3	20.2	22.0	24.1	25.1	23.1	24.6
18	22.0	21.8	20.8	20.8	20.6	18.8	16.7	17.5	19.6	21.7	22.9	23.7	24.2	25.1	25.1
19	23.8	23.8	21.2	22.8	20.4	19.5	18.7	17.5	19.0	21.7	24.2	25.5	26.1	26.3	26.0
20	23.0	21.9	21.9	21.9	20.9	19.8	17.7	17.7	18.8	20.0	22.3	24.2	25.2	26.3	25.7
21	22.1	21.7	21.9	21.0	21.2	19.4	16.7	17.2	19.6	22.5	24.7	25.3	25.2	25.2	25.2
22	20.9	23.0	22.1	19.1	18.9	20.9	23.0	21.1	20.3	20.8	21.4	22.2	23.9	24.7	24.2
23	22.1	22.1	21.9	21.1	21.2	20.4	18.1	17.6	18.6	20.0	21.9	24.0	25.3	25.6	25.3
24	21.9	23.1	21.9	21.2	20.9	20.1	19.4	17.0	17.7	19.3	21.9	23.4	25.1	25.7	25.2
25*	22.5	22.2	23.1	22.0	21.0	18.9	18.9	17.7	18.0	19.8	20.2	22.0	23.1	24.0	23.9
26*	22.9	22.4	22.0	22.0	22.0	21.8	19.9	19.8	19.7	19.9	21.6	22.0	23.1	23.9	24.1
27*	22.0	22.0	22.0	21.9	21.9	21.3	20.2	19.9	19.9	20.8	21.9	23.1	24.3	24.7	24.3
28	21.2	22.0	23.1	21.4	23.6	25.6	20.1	20.2	19.9	21.0	22.9	24.7	25.3	25.3	25.2
29	21.8	23.7	21.1	19.9	21.0	21.0	19.3	18.8	19.3	20.1	22.0	23.1	24.0	24.5	24.0
30	22.6	23.9	23.2	21.8	22.0	21.7	19.1	19.0	20.9	21.5	23.1	25.3	25.3	25.0	24.4
31	22.3	22.1	22.3	21.5	21.3	20.6	19.0	19.7	21.1	22.1	23.0	23.6	24.1	24.4	23.7
Mean....	22.0	22.1	22.1	21.5	21.3	20.6	19.0	18.5	19.2	20.7	22.2	23.4	24.2	24.7	24.4
Mean*...	22.2	22.0	22.1	21.8	21.4	20.8	19.2	18.9	19.6	20.8	22.1	23.0	23.7	24.1	23.9

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

JULY, 1910.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day		
									'	h m	'	h m	'		
23.0	22.2	22.2	22.1	21.5	21.5	21.3	21.1	21.1	21.2	15 00	23.2	7 09	18.7	4.5	1
22.3	22.0	21.7	21.8	22.0	21.8	21.5	21.1	21.0	20.9	14 00	23.1	8 00	11.9	5.2	2
21.0	20.5	20.8	21.1	21.1	21.4	21.4	21.4	21.4	21.0	12 00	24.2	7 40	16.1	8.1	3
23.1	22.2	22.1	22.1	22.2	22.2	22.2	21.1	19.2	20.8	16 00	23.1	7 39	16.5	6.6	4
22.1	20.9	20.6	21.1	21.0	20.0	21.1	20.7	21.0	20.4	13 44	24.4	7 45	14.8	9.6	5
22.2	21.2	21.0	21.1	21.2	21.6	21.2	21.2	21.2	21.0	12 43	24.1	7 42	15.2	8.9	6
22.5	21.4	21.0	21.2	21.1	21.1	21.4	21.7	21.5	21.4	13 00	24.7	7 45	16.6	8.1	7
23.3	22.3	21.8	21.5	21.1	21.2	21.2	21.2	21.2	20.9	15 00	24.1	8 00	17.0	7.1	8
23.5	22.4	22.1	21.2	21.4	21.5	21.2	21.2	21.0	21.2	14 32	24.7	8 00	16.1	8.6	9
23.2	22.3	22.0	22.1	22.0	21.9	21.2	21.2	21.2	21.3	14 00	24.3	7 48	18.0	6.3	10
23.9	23.1	22.3	21.6	21.5	21.4	21.2	21.2	21.2	21.8	15 00	24.3	7 26	18.2	6.1	11
23.9	22.2	21.4	21.2	21.2	21.4	21.2	21.2	21.2	21.0	14 31	25.1	8 33	16.1	9.0	12
21.5	21.3	21.6	21.7	21.5	21.5	21.3	21.3	21.0	14 00	22.3	8 00	18.3	4.0	13	
22.7	22.3	22.2	22.3	22.2	22.2	21.8	21.5	21.3	21.3	14 00	24.5	8 00	17.3	7.2	14
23.1	22.1	21.6	21.6	21.5	21.6	21.3	21.1	20.9	20.8	14 34	24.4	8 00	17.1	7.3	15
22.1	21.6	22.3	22.4	22.4	21.5	21.3	21.3	21.1	21.1	14 00	23.6	7 35	17.9	5.7	16
23.9	22.4	21.7	21.9	21.5	21.8	21.7	21.5	21.3	21.5	14 12	24.8	7 43	19.2	5.6	17
22.4	22.5	22.7	22.7	22.4	22.3	21.9	21.3	21.3	21.5	14 44	22.7	6 40	18.6	4.1	18
23.4	22.4	22.3	22.4	22.3	22.2	21.7	21.2	21.0	21.2	15 00	24.5	7 46	17.3	7.2	19
22.5	21.8	21.6	21.6	21.9	21.7	21.6	21.4	21.4	21.5	12 22	25.0	7 06	17.4	7.6	20
22.3	21.6	21.6	21.8	21.7	21.8	21.8	21.8	21.6	21.4	14 00	24.6	7 00	17.7	6.9	21
23.5	22.5	22.1	21.8	21.7	21.4	21.6	21.8	21.3	21.3	15 00	24.3	7 49	18.3	6.0	22
23.4	23.0	22.5	22.3	22.2	21.4	20.7	21.4	21.3	21.7	14 00	23.5	7 36	19.1	4.4	23
23.2	23.4	22.5	22.3	22.0	21.6	21.4	21.4	21.4	21.4	14 48	23.5	7 36	17.1	6.4	24
23.8	23.5	22.5	22.2	22.0	21.7	21.7	21.4	21.3	21.4	16 12	23.9	7 43	17.5	6.4	25
22.5	21.7	22.1	22.0	21.5	21.7	21.8	21.7	21.5	21.4	16 00	22.5	8 00	19.4	3.1	26
23.6	22.8	22.6	22.0	21.8	21.8	21.7	21.7	21.7	21.7	16 00	23.6	8 00	19.4	4.2	27
23.8	23.1	22.9	23.5	22.9	22.7	20.8	20.6	21.2	22.1	13 00	24.6	7 23	18.9	5.7	28
23.5	24.0	23.6	22.9	22.9	22.0	21.7	22.1	21.7	22.0	16 00	23.5	8 21	18.5	5.0	29
23.2	22.7	22.5	21.8	21.9	21.5	21.7	21.5	21.7	21.5	14 30	23.8	8 00	17.7	6.1	30
23.9	23.4	23.0	22.6	22.4	22.3	22.2	22.2	22.1	22.2	15 00	24.6	7 43	19.1	5.5	31
23.0	22.3	22.0	21.9	21.9	21.8	21.7	21.5	21.4	21.3	21.3				6.3	
22.7	22.0	21.9	21.8	21.8	21.8	21.5	21.4	21.3	21.2					6.2	

AUGUST, 1910.

2° WEST PLUS TABULAR MINUTES.

(23.3)	22.5	22.1	21.9	22.1	21.6	20.4	20.6	21.3	21.6	(14 30)	(24.1)	8 00	18.3	5.8	1
23.9	23.5	23.1	22.8	22.8	22.1	22.7	22.5	22.0	22.2	14 19	24.8	8 00	18.5	6.3	2
23.0	22.3	22.1	22.6	22.0	21.8	21.1	20.7	22.3	21.8	15 00	23.9	8 37	17.8	6.1	3
23.6	22.7	22.2	22.1	22.2	21.9	21.6	21.6	20.9	22.0	12 19	25.2	7 00	18.6	6.6	4
24.9	24.5	23.0	22.0	22.1	22.1	22.0	21.6	22.1	22.1	15 00	25.2	7 15	17.6	7.6	5
23.4	22.6	22.4	22.2	21.8	21.6	21.6	21.8	22.0	21.5	14 27	24.9	8 00	17.4	5.7	6
22.7	22.0	22.4	22.2	22.2	21.9	21.9	21.9	22.0	21.8	14 00	24.3	8 00	17.5	6.8	7
23.3	22.0	21.7	21.7	21.7	21.9	22.0	22.1	22.0	22.0	14 00	25.0	8 00	18.7	6.3	8
23.1	22.6	21.9	21.6	21.0	20.8	19.9	19.5	19.4	21.3	13 22	25.1	8 19	15.8	9.3	9
24.0	23.0	23.0	22.8	22.6	21.9	21.9	21.7	21.7	21.2	15 16	25.0	8 44	16.4	8.6	10
23.3	23.0	22.9	22.4	22.3	22.4	22.3	21.9	21.7	21.8	13 29	23.8	7 35	18.3	5.5	11
22.9	22.7	22.9	22.5	22.6	22.1	22.0	21.9	22.8	21.7	14 00	23.3	8 00	18.7	4.6	12
22.8	22.2	22.9	22.5	23.0	22.9	22.4	22.2	22.0	22.1	13 00	23.9	7 25	18.7	5.2	13
25.0	24.4	23.3	23.1	22.8	21.8	22.1	21.7	21.8	22.0	16 15	26.0	9 00	17.8	8.2	14
23.8	23.3	23.0	23.0	22.8	22.7	22.0	22.1	22.1	22.1	15 00	24.1	7 00	18.6	5.5	15
22.9	22.3	22.1	22.3	22.2	22.1	22.0	22.0	22.2	22.3	12 06	24.9	7 13	19.6	5.3	16
24.2	23.4	23.4	23.3	23.3	22.9	22.8	22.5	21.8	22.1	13 24	25.3	8 00	17.1	8.2	17
25.1	24.2	23.8	22.9	22.5	22.1	22.3	22.9	21.8	22.0	15 12	25.2	7 26	16.4	8.8	18
24.2	23.1	23.0	23.0	22.1	22.1	22.9	22.1	21.8	22.5	14 00	26.3	7 45	16.7	9.6	19
24.2	23.1	22.7	22.2	22.5	22.1	22.4	21.8	22.2	22.1	14 00	26.3	8 00	17.7	8.6	20
24.2	23.8	23.7	22.7	22.7	22.1	21.8	23.3	20.6	22.2	12 39	25.8	7 00	16.7	9.1	21
23.6	22.4	21.8	22.8	23.0	23.9	22.3	22.3	22.4	22.1	14 09	25.1	4 53	18.1	7.0	22
24.2	23.4	21.9	22.1	21.9	21.9	22.1	21.9	22.1	21.9	13 39	25.8	8 00	17.6	8.2	23
24.2	23.0	22.9	22.8	22.5	22.3	22.4	22.4	22.1	22.1	14 00	25.7	8 34	16.8	8.9	24
23.8	23.3	22.8	22.3	22.2	22.0	22.0	22.2	22.2	21.8	14 20	24.3	8 24	17.1	7.2	25
23.9	23.1	22.8	22.6	22.3	22.4	22.2	22.0	22.0	22.1	15 00	24.1	7 43	19.5	4.6	26
23.3	22.8	22.8	22.9	22.4	22.0	22.0	22.0	22.0	22.2	13 45	25.0	8 00	19.9	5.1	27
23.8	23.1	22.9	21.0	19.9	20.9	20.9	20.8	21.2	22.3	6 00	25.6	7 15	19.1	6.5	28
23.1	22.3	22.2	22.6	22.4	22.3	22.0	22.5	23.6	21.9	13 20	24.8	8 21	18.5	6.3	29
23.5	22.3	22.9	21.9	22.0	22.0	22.0	22.5	22.8	22.5	2 24	25.4	7 21	18.7	6.7	30
23.2	23.0	23.0	23.0	22.3	22.7	23.4	22.1	22.4	22.4	14 00	24.4	7 00	19.0	5.4	31
23.7	23.0	22.7	22.5	22.3	22.1	22.0	21.9	21.9	22.0				6.9		
23.3	22.6	22.5	22.4	22.4	22.2	22.0	22.0	22.1	22.0				5.8		

## PORTO RICO MAGNETIC OBSERVATORY.

SEPTEMBER, 1910.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	23.0	23.0	22.3	22.0	21.1	19.3	17.9	17.7	18.9	20.4	22.3	24.1	25.0	25.1	24.9
2*	22.3	23.1	23.1	22.7	21.1	19.9	17.8	19.2	22.0	24.4	26.0	27.0	27.3	26.5	24.6
3*	22.7	22.4	22.1	21.9	21.3	20.3	17.7	17.6	18.5	20.2	22.1	24.0	25.3	25.5	25.4
4*	22.7	23.0	22.3	21.6	21.1	19.9	17.1	17.6	20.0	21.9	22.4	24.1	25.3	25.4	24.6
5*	22.5	22.5	22.3	21.9	22.3	20.7	17.9	17.9	19.1	21.2	23.4	25.4	26.5	25.5	24.4
6	22.6	22.5	23.1	22.0	21.2	20.1	17.3	17.0	18.2	21.2	22.2	24.5	26.0	26.0	25.4
7	22.2	22.4	23.1	22.5	23.3	21.6	19.1	17.2	17.9	19.3	21.7	23.8	25.5	26.6	25.8
8*	22.0	22.1	22.2	22.0	22.0	20.9	19.1	18.5	19.9	21.9	24.1	25.5	26.6	26.4	25.5
9*	22.6	23.0	23.2	22.4	21.7	20.9	19.1	19.1	20.0	21.2	22.6	24.1	25.7	26.2	25.4
10	22.2	22.2	22.2	21.6	21.5	20.7	19.0	18.4	19.4	21.4	23.7	25.6	26.7	26.3	25.5
11	22.2	22.2	22.2	22.2	22.1	20.1	18.3	18.9	20.1	21.6	23.1	24.5	25.6	25.5	24.7
12*	22.6	22.5	22.3	22.3	22.0	21.3	20.1	19.4	19.9	21.0	22.3	24.0	24.9	24.6	23.4
13	22.5	22.2	22.2	21.4	21.3	20.9	19.6	19.9	20.4	21.7	23.4	25.8	26.7	26.7	25.5
14	22.3	23.4	23.4	21.5	21.2	20.2	20.1	19.3	19.8	21.4	24.3	25.6	26.1	25.4	24.3
15	22.6	22.3	22.0	22.3	22.1	21.0	20.5	21.0	21.8	23.2	24.6	25.3	24.6	23.4	22.5
16	22.3	22.2	21.5	21.6	21.0	19.9	19.4	18.9	21.0	22.7	24.2	24.3	23.4	22.5	22.2
17*	23.3	22.5	21.9	22.1	22.0	20.7	19.8	20.4	21.4	23.5	26.4	25.9	26.2	25.4	23.4
18*	22.7	23.3	22.2	22.4	22.1	21.4	20.3	20.3	21.4	23.1	24.7	26.0	26.5	25.5	23.7
19*	22.9	22.4	22.4	22.3	22.1	21.3	20.2	20.3	21.4	22.4	24.1	25.6	25.7	25.5	24.1
20	23.2	22.8	22.6	22.3	22.2	21.2	19.3	18.8	19.8	22.3	24.8	26.8	26.5	26.4	25.7
21	23.6	23.6	22.3	21.6	21.3	23.3	20.2	19.3	19.8	20.7	22.9	24.3	24.4	23.7	23.5
22	....	....	....	....	....	....	....	21.5	21.9	24.4	25.7	25.7	25.7	25.1	....
23	23.1	23.9	23.6	22.7	22.2	21.8	21.5	21.5	22.0	22.1	23.4	23.8	24.4	24.4	24.2
24	25.2	23.2	22.7	22.5	22.5	26.2	24.8	22.0	22.5	21.9	22.5	24.8	23.8	23.6	23.4
25	22.9	23.2	23.3	22.7	22.5	22.5	21.5	21.5	22.0	22.1	23.4	23.8	24.4	24.2	23.1
26	22.9	23.2	23.3	22.8	22.8	23.6	23.6	23.8	23.5	22.5	22.9	22.7	23.5	23.2	23.1
27	23.6	22.7	22.5	22.5	21.5	22.5	23.5	21.5	22.9	23.6	25.4	25.2	24.5	23.7	23.6
28	24.1	23.4	21.5	22.4	22.5	21.5	21.1	21.1	21.6	22.4	23.6	24.8	24.4	23.8	23.6
29	23.3	23.6	23.8	22.5	23.3	24.5	24.8	20.2	22.4	23.2	22.5	23.6	23.6	24.1	23.1
30	23.1	26.0	23.3	22.8	23.3	22.8	22.5	22.3	22.1	21.7	23.3	24.4	24.4	23.6	23.0
Mean.....	22.8	22.9	22.6	22.2	22.0	21.3	20.1	19.6	20.7	22.0	23.6	24.9	25.4	25.0	24.3
Mean*....	22.6	22.7	22.4	22.2	21.8	20.7	18.9	19.0	20.4	22.1	23.8	25.2	26.0	25.6	24.4

OCTOBER, 1910.

2° WEST PLUS TABULAR MINUTES.

1	22.8	22.9	22.9	22.8	22.3	22.1	21.8	21.6	22.9	24.6	25.7	25.1	24.7	24.7	23.4
2	22.2	21.9	22.9	24.0	21.7	23.0	22.8	22.8	23.1	23.5	23.9	23.0	22.3	21.9	22.6
3	23.9	22.8	22.9	22.3	21.9	21.9	20.9	20.9	21.8	22.8	23.9	24.1	24.0	23.9	23.8
4	21.0	21.9	20.9	22.0	21.2	20.9	20.4	20.2	20.7	22.2	23.1	24.4	25.1	24.9	23.9
5	23.0	23.3	23.5	23.4	23.1	22.0	20.9	19.8	19.9	21.0	22.9	24.5	25.4	25.9	26.5
6	23.4	24.1	28.4	23.9	22.7	22.7	21.9	20.9	19.9	20.0	22.1	24.8	25.9	27.8	25.9
7*	22.9	23.2	23.0	22.9	22.9	22.3	21.2	19.8	19.3	19.8	21.9	23.9	25.6	25.3	25.2
8*	23.0	23.2	23.0	22.9	22.8	22.4	21.7	20.5	19.8	19.9	21.5	23.0	24.0	24.8	24.9
9*	22.7	23.1	22.9	22.8	22.7	22.1	21.6	20.7	20.9	22.0	22.9	23.8	23.8	23.8	23.8
10*	23.0	23.0	22.9	22.9	22.9	22.8	21.9	20.6	20.1	20.9	21.4	22.7	23.8	24.3	24.3
11	23.0	23.4	22.9	23.6	23.8	22.9	22.1	22.9	23.0	23.3	23.1	23.5	23.3	23.9	24.0
12	22.9	23.8	22.9	23.9	22.9	22.9	22.6	21.9	20.9	21.8	22.0	22.9	23.7	24.1	23.9
13	21.8	21.9	24.7	23.2	23.0	23.3	25.0	23.8	22.8	22.4	22.3	22.1	22.9	23.8	23.8
14	23.0	23.0	23.9	23.6	23.3	23.4	22.9	21.9	20.9	21.0	22.4	23.8	24.1	24.9	25.0
15*	23.4	23.0	23.1	23.8	22.9	22.8	22.8	21.8	21.0	21.3	22.8	24.0	23.8	23.9	23.9
16*	23.6	23.2	23.2	23.0	22.9	22.8	22.0	21.6	20.9	22.7	23.9	25.0	25.3	24.8	24.3
17*	23.4	22.9	22.9	22.8	22.7	21.7	20.8	21.7	22.5	22.7	22.5	22.7	23.4	23.8	23.8
18*	23.7	23.7	23.6	23.2	22.9	22.8	21.8	21.0	21.1	22.1	23.8	24.7	24.9	25.5	24.9
19	23.7	23.8	23.6	23.6	22.9	23.0	23.7	25.5	21.9	20.8	21.8	22.9	24.8	24.8	25.3
20	24.7	24.0	23.7	23.8	24.9	22.9	23.2	22.8	20.9	23.7	24.7	25.1	25.7	25.6	24.9
21	23.8	23.4	23.8	23.8	22.9	22.8	21.0	19.9	19.6	20.7	22.2	24.3	24.9	25.2	25.4
22*	23.9	24.8	23.9	23.8	23.3	23.1	22.9	21.1	20.9	21.3	22.7	23.3	23.9	24.9	25.1
23	23.9	24.7	23.9	23.8	23.7	23.8	24.0	21.8	20.9	21.5	22.7	23.0	23.8	24.7	24.7
24	23.5	23.6	23.8	24.8	24.9	24.3	22.9	22.0	23.1	23.0	22.9	23.5	24.1	24.9	24.8
25	22.7	22.9	24.2	25.1	24.3	23.8	23.9	23.6	23.7	23.5	23.9	23.9	22.9	23.8	23.1
26	24.6	23.8	22.9	23.0	23.0	23.9	24.7	23.9	22.9	23.8	24.9	24.8	23.9	24.8	24.7
27	23.3	23.1	23.0	23.4	25.9	27.9	26.2	25.0	24.0	23.3	24.0	24.0	24.1	23.6	23.9
28	23.0	23.1	24.8	23.0	23.5	23.9	23.0	22.4	22.2	22.7	23.3	24.0	24.0	24.0	24.1
29	23.9	23.8	24.1	25.0	24.0	23.9	24.0	24.2	23.2	23.5	23.9	24.0	23.8	23.9	23.9
30	23.9	24.0	23.9	23.8	23.6	23.9	25.0	24.0	23.0	23.5	24.1	23.2	23.0	23.4	23.8
31*	24.0	24.0	24.0	23.5	23.1	22.9	22.0	21.7	21.7	22.0	22.6	22.9	22.9	23.0	23.0
Mean.....	23.3	23.3	23.6	23.4	23.2	23.1	22.7	21.9	21.5	22.2	23.1	23.8	24.0	24.4	24.3
Mean*....	23.4	23.4	23.2	23.1	23.0	22.7	22.0	21.0	20.7	21.4	22.6	23.5	24.0	24.3	24.3

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF DECLINATION.

SEPTEMBER, 1910.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum		Minimum		Range	Day
										h	m	h	m		
24.1	23.2	22.1	21.0	21.9	22.1	22.3	22.1	22.9	22.0	14 00	25.1	7 45	17.3	7.8	1
23.0	22.1	22.1	22.7	23.0	22.9	22.3	22.3	22.7	22.9	13 00	27.3	7 00	17.9	9.4	2
24.4	23.0	22.5	22.3	22.6	22.8	22.8	22.9	23.0	22.2	14 00	25.5	7 22	17.2	8.3	3
24.0	23.2	23.1	22.9	22.9	23.0	23.0	22.8	22.4	22.4	14 00	25.3	7 15	17.1	8.2	4
23.5	23.0	23.2	23.3	23.1	22.8	22.8	22.9	22.4	22.5	13 00	26.5	7 24	17.5	9.0	5
24.0	23.3	23.0	22.2	21.7	21.6	21.6	20.8	22.0	22.1	13 12	26.4	7 51	16.7	9.7	6
25.0	23.6	23.3	22.6	22.4	21.4	21.2	21.2	21.4	22.3	14 00	26.6	8 00	17.2	9.4	7
24.2	23.3	23.1	22.7	22.1	22.4	22.2	22.5	22.7	22.7	13 00	26.6	7 52	18.2	8.4	8
24.0	23.2	23.1	23.2	22.9	22.4	22.2	22.2	22.2	22.6	14 00	26.2	8 00	19.1	7.1	9
24.7	24.5	23.8	23.5	23.2	23.0	22.4	22.8	22.2	22.8	13 00	26.7	8 10	18.0	8.7	10
24.0	23.2	23.3	23.3	23.0	22.6	22.2	22.8	22.5	22.5	13 00	25.6	7 21	18.0	7.6	11
22.5	22.3	22.9	23.3	22.8	22.6	22.9	22.7	22.6	22.4	13 00	24.9	8 00	19.4	5.5	12
24.6	24.0	24.0	23.3	23.8	23.4	22.6	22.6	23.0	23.0	13 00	26.7	7 19	19.2	7.5	13
23.4	23.4	23.8	23.4	23.4	22.8	22.6	22.5	22.8	23.0	13 00	26.1	7 33	18.4	7.7	14
23.0	23.2	23.4	23.3	23.3	23.2	23.0	22.6	22.8	22.8	12 00	25.3	6 38	20.1	5.2	15
22.3	23.1	23.4	23.2	23.3	23.1	22.5	23.1	22.6	22.2	12 00	24.3	8 00	18.9	5.4	16
22.5	22.2	23.0	22.7	22.8	22.8	22.7	22.9	22.9	22.9	12 43	26.4	7 00	19.8	6.6	17
22.4	22.4	22.7	22.8	22.7	22.6	22.8	22.4	22.7	22.9	12 42	26.6	7 22	20.0	6.6	18
23.3	22.8	23.1	23.0	22.7	22.8	22.8	23.1	23.3	22.9	13 00	25.7	7 00	20.2	5.5	19
24.7	24.4	23.4	22.4	22.8	22.9	20.9	22.7	22.4	23.0	12 00	26.8	8 00	18.8	8.0	20
23.5	---	---	---	---	---	---	---	---	12 29	24.7	8 00	19.3	5.4	21	
24.4	---	---	---	---	---	---	---	---	12 29	25.8	---	---	---	22	
23.4	23.3	22.4	22.4	23.0	23.1	22.9	23.0	23.0	---	12 22	24.5	20 35	18.8	5.7	23
23.8	23.8	23.5	22.5	22.8	21.2	22.4	22.8	22.5	22.9	14 22	24.5	20 35	18.8	5.7	24
23.5	23.4	23.5	23.0	22.2	22.3	22.5	23.6	22.9	23.3	6 18	26.9	9 56	21.7	5.2	25
23.4	24.1	23.6	23.4	23.4	22.9	22.5	22.7	22.7	23.2	8 11	24.5	10 00	22.5	2.0	26
23.5	23.1	22.7	22.1	22.3	22.3	22.5	23.6	22.7	23.1	10 53	25.6	8 00	21.5	4.1	27
23.6	23.5	23.6	23.1	22.8	22.5	22.5	23.3	22.7	22.8	11 29	24.9	7 48	20.4	4.5	28
23.6	22.4	22.5	23.1	23.2	23.0	23.0	23.0	23.2	23.2	5 43	24.9	8 10	19.4	5.5	29
23.1	(23.2)	23.3	23.1	23.3	23.3	23.0	23.0	22.9	23.2	2 10	26.1	9 54	21.6	4.5	30
23.6	23.2	23.1	22.9	22.8	22.6	22.5	22.6	22.6	22.7	11 00	25.7	20 43	18.1	7.6	1
23.4	22.8	22.9	22.9	22.8	22.7	22.7	22.7	22.7	22.6	11 00	25.7	20 43	18.1	7.6	2

OCTOBER, 1910.

2° WEST PLUS TABULAR MINUTES.

22.9	22.7	21.7	20.9	21.7	18.7	21.9	21.9	22.9	22.7	11 00	25.7	20 43	18.1	7.6	1
23.3	23.5	23.0	23.0	22.9	22.3	22.9	22.8	22.8	22.8	3 51	25.6	5 00	21.7	3.9	2
23.9	24.3	23.9	22.9	23.2	22.1	22.7	20.6	22.1	22.8	11 26	24.9	23 12	20.1	4.8	3
23.0	23.8	20.3	22.9	22.6	21.9	22.8	22.9	22.9	22.3	12 54	25.4	0 27	19.8	5.6	4
25.9	25.0	24.1	23.8	23.7	20.7	21.9	22.7	23.0	23.2	14 14	26.9	8 00	19.8	7.1	5
22.9	23.9	23.7	23.0	22.9	22.9	22.9	22.9	22.9	23.4	3 00	28.4	8 36	17.9	10.5	6
24.8	24.7	24.1	24.0	23.0	23.0	22.8	22.4	23.0	23.0	13 06	25.7	9 19	18.9	6.8	7
25.8	25.0	24.7	22.9	23.1	23.2	23.1	23.2	22.9	23.0	16 33	26.0	9 28	19.7	6.3	8
23.9	24.0	23.9	23.7	23.4	23.1	22.9	23.1	23.0	22.9	1 31	24.8	8 25	20.6	4.2	9
24.1	23.9	24.6	23.9	23.1	22.9	23.0	23.0	23.0	22.8	17 48	24.8	8 19	20.0	4.8	10
24.6	23.8	24.4	23.8	23.4	23.2	22.9	22.6	21.9	23.3	16 12	24.9	23 33	21.7	3.2	11
24.8	25.7	23.0	22.4	19.6	21.4	21.8	24.2	22.0	22.8	17 00	25.7	20 05	19.0	6.7	12
23.8	24.0	22.2	21.9	23.1	22.9	23.0	22.8	22.9	23.1	7 02	25.1	11 49	21.7	3.4	13
24.9	24.4	22.9	22.9	23.2	23.3	23.3	23.8	22.8	23.3	15 06	25.1	9 27	20.6	4.5	14
23.8	23.7	23.6	23.6	23.4	23.6	23.5	23.6	23.6	23.2	12 15	24.3	9 36	20.8	3.5	15
24.6	24.5	23.7	23.6	23.5	23.7	23.7	23.7	23.7	23.5	12 40	25.5	9 00	20.9	4.6	16
24.2	24.6	23.8	23.7	23.7	23.7	23.7	23.7	23.7	23.1	17 00	24.6	7 50	20.7	3.9	17
24.6	23.9	23.8	23.7	23.7	23.7	23.6	23.7	23.7	23.5	13 45	25.6	8 38	20.8	4.8	18
24.1	21.8	23.6	22.8	21.8	22.8	22.6	23.6	23.8	23.4	6 43	25.7	8 29	19.8	5.9	19
24.2	23.8	22.9	22.6	21.8	22.4	22.9	24.7	24.7	23.7	13 38	25.8	8 45	20.8	5.0	20
25.1	24.8	23.8	22.9	23.0	22.4	22.0	22.9	23.1	23.1	13 33	25.8	8 31	19.1	6.7	21
25.1	24.0	23.7	23.2	22.4	21.7	22.9	23.2	23.3	23.3	15 26	25.5	8 09	20.7	4.8	22
23.9	23.8	22.8	23.6	23.3	22.9	22.8	23.1	23.6	23.2	1 37	25.1	9 08	20.9	4.2	23
24.8	24.2	23.9	23.7	23.0	22.1	22.9	22.0	22.5	23.6	14 00	24.9	20 30	21.8	3.1	24
23.9	23.9	23.0	22.3	22.0	22.5	21.9	22.0	22.0	23.3	4 14	25.7	19 40	20.6	5.1	25
23.9	23.8	22.9	21.9	22.3	22.9	22.9	24.3	24.3	23.6	1 22	26.9	19 15	21.0	5.9	26
24.0	24.0	23.5	23.5	23.0	22.7	19.8	21.6	22.9	23.8	6 21	28.1	21 42	17.6	10.5	27
24.1	24.1	23.2	23.1	23.4	23.3	23.5	23.7	23.9	23.5	2 45	25.9	9 32	22.1	3.8	28
24.1	24.2	23.6	22.9	23.6	23.0	23.1	23.2	23.1	23.7	4 00	25.0	21 17	22.0	3.0	29
24.0	24.0	23.6	23.5	23.4	23.6	23.9	23.9	23.9	23.7	6 35	25.2	8 56	22.9	2.3	30
23.4	24.0	23.8	23.9	23.8	23.5	23.5	23.2	23.9	23.2	3 43	24.1	8 22	21.0	3.1	31
24.2	24.1	23.4	23.1	22.9	22.6	22.8	23.0	23.2	23.2	23 1				5.1	
24.4	24.2	24.0	23.6	23.4	23.2	23.3	23.3	23.4	23.1					4.7	

## PORTO RICO MAGNETIC OBSERVATORY

NOVEMBER, 1910.

2° WEST PLUS TABULAR MINUTES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	24.0	24.0	24.1	23.9	22.9	22.8	22.1	21.7	22.1	22.9	23.4	23.9	23.8	23.7	23.9
2	23.9	24.1	23.6	22.9	25.2	25.9	26.1	25.0	23.1	23.1	23.1	24.0	24.1	24.2	24.4
3*	24.0	23.6	23.7	23.5	23.3	23.1	23.2	23.1	23.0	23.2	24.1	24.1	24.3	24.4	24.2
4*	24.0	24.0	24.0	24.0	23.1	22.9	21.9	21.4	22.1	23.1	24.0	24.9	24.2	24.3	24.3
5*	24.0	24.1	23.7	23.5	23.3	23.2	23.0	22.1	22.2	22.5	23.1	23.7	23.9	24.0	24.1
6*	23.6	23.3	24.0	23.6	23.5	23.2	22.4	21.7	21.3	22.2	23.1	23.4	24.0	24.0	23.9
7	23.6	23.9	24.0	23.4	23.9	22.4	23.0	23.1	22.2	22.5	23.8	24.1	24.3	24.4	24.8
8	23.4	24.0	23.5	23.8	23.3	23.2	23.7	23.2	22.1	22.2	22.5	22.7	24.2	24.2	24.6
9	24.1	24.2	23.7	24.1	23.3	24.1	23.3	22.4	22.1	22.2	23.0	23.2	23.5	24.1	24.2
10	25.2	25.0	25.1	24.2	24.2	24.1	24.2	23.2	22.7	22.2	23.0	23.0	23.2	23.7	24.3
11*	23.9	24.0	24.2	24.2	24.1	24.2	24.2	23.2	22.2	22.1	23.2	23.4	23.4	24.3	25.1
12*	23.9	23.5	24.1	24.0	23.9	24.1	24.1	23.2	23.4	22.1	23.2	24.7	25.4	26.2	26.1
13*	24.1	24.1	24.0	24.0	23.8	23.6	23.2	22.0	21.0	20.8	21.1	21.9	22.2	23.0	24.1
14*	24.1	24.1	24.1	23.9	23.8	23.9	23.2	22.1	21.9	22.2	23.6	25.0	24.9	24.3	24.3
15*	24.4	24.4	24.3	24.3	24.2	24.0	23.4	22.9	22.2	23.1	23.4	24.3	24.6	24.6	24.9
16	23.6	24.3	24.3	24.3	24.4	24.9	24.2	23.5	22.3	22.1	22.2	23.1	24.2	24.4	24.8
17	23.8	24.3	24.3	24.4	24.2	25.0	25.5	23.1	23.3	23.1	23.3	23.9	24.3	24.5	24.5
18	24.4	24.5	25.1	25.2	25.3	26.9	24.4	24.1	22.2	21.6	21.9	23.2	24.1	25.3	26.2
19	24.4	25.3	25.4	25.3	24.3	24.2	23.7	23.5	23.1	23.3	25.2	25.2	26.3	25.5	26.2
20	24.3	24.3	24.3	24.3	24.3	24.1	23.6	22.4	21.4	21.6	23.1	24.4	25.4	26.2	25.5
21	24.3	24.9	26.1	24.8	24.3	24.3	24.2	22.4	21.3	20.2	20.2	21.5	23.4	25.3	25.8
22	24.3	24.5	24.5	25.3	25.0	24.1	23.8	23.4	21.3	20.4	22.1	24.3	25.6	26.2	26.2
23	24.4	24.5	24.4	24.3	24.6	24.3	23.8	22.3	21.2	20.9	22.5	24.9	26.4	26.7	26.4
24*	24.4	24.4	24.4	24.4	24.2	23.8	23.5	22.2	20.7	21.1	22.7	26.2	27.7	27.3	26.5
25	24.3	24.5	25.0	24.5	25.0	24.3	24.1	23.3	22.4	22.7	23.6	24.4	24.6	25.1	24.7
Mean....	24.1	24.3	24.3	24.3	24.2	24.1	23.8	23.0	22.3	22.2	23.1	23.9	24.5	24.8	25.0
Mean*...	24.0	24.0	24.0	23.9	23.7	23.6	23.2	22.4	22.0	22.2	23.2	24.2	24.5	24.7	24.8

DECEMBER, 1910.

2° WEST PLUS TABULAR MINUTES.

1	24.7	24.2	25.4	25.0	24.5	24.5	24.3	23.5	23.2	23.3	23.5	24.4	24.6	24.5	25.4
2	24.5	25.0	25.1	23.7	24.3	23.5	25.1	23.5	23.3	23.3	24.5	25.3	26.1	25.5	25.5
3	24.5	24.5	24.7	24.5	24.5	24.4	24.5	23.8	22.7	22.5	22.9	23.5	23.6	24.2	25.4
4	24.6	24.5	24.5	25.3	24.5	24.2	24.2	23.5	22.9	23.5	24.4	25.5	25.5	26.0	25.6
5	25.0	24.8	24.9	24.6	24.2	24.4	24.1	22.7	22.3	22.4	23.5	24.5	25.4	26.3	25.8
6	24.6	24.7	24.6	24.4	24.7	24.6	24.6	23.5	22.6	22.6	23.6	25.4	26.6	26.8	26.8
7	24.7	25.1	25.1	24.8	24.9	24.9	24.5	24.4	22.3	21.6	22.7	24.2	25.5	25.6	25.5
8*	24.9	25.6	24.6	24.7	24.6	24.6	24.7	23.5	21.9	21.6	21.8	22.9	23.6	25.5	25.6
9*	25.4	25.5	25.6	25.5	24.6	24.7	25.2	24.5	22.9	22.6	23.2	24.6	26.1	26.5	26.5
10*	24.6	24.7	24.7	24.6	24.6	24.6	24.6	23.6	22.6	22.9	23.6	25.5	27.0	27.3	27.3
11*	24.6	24.7	24.8	24.7	24.6	24.6	24.8	23.6	22.4	21.6	22.5	24.3	25.6	26.4	26.6
12*	24.6	24.7	24.9	25.3	24.9	24.6	24.6	23.6	22.5	21.2	21.3	22.8	25.6	26.6	26.7
13	25.7	24.7	24.9	25.0	24.8	24.7	24.6	23.3	22.3	21.4	21.6	23.5	25.7	26	26.7
14	24.8	25.4	24.9	24.7	24.7	25.1	24.7	23.7	22.7	21.9	21.7	23.0	24.6	25.8	26.6
15	25.3	24.6	27.7	25.7	25.6	26.6	25.7	23.6	22.6	23.1	23.7	24.7	25.7	25.7	25.6
16*	25.7	25.6	24.8	25.6	25.1	24.7	24.7	23.6	22.6	22.3	23.5	24.4	25.7	26.5	26.5
17*	25.6	25.5	25.6	25.5	25.1	24.7	24.6	23.2	23.7	24.7	26.6	27.7	27.9	27.0	27.0
18	25.7	26.0	25.7	24.6	25.6	24.8	25.0	23.7	21.8	21.2	21.7	23.7	26.5	27.4	26.9
19	25.2	25.6	25.7	24.9	24.8	24.7	26.0	23.7	21.6	20.6	21.3	23.7	25.7	26.7	26.7
20	24.9	25.6	25.8	26.4	26.2	26.6	25.8	25.7	22.8	22.5	23.8	24.8	26.9	28.2	27.1
21	25.3	25.8	25.9	26.8	26.4	25.7	25.4	23.8	22.8	21.8	22.0	23.0	26.8	28.6	28.5
22	24.8	25.6	25.8	27.8	26.9	25.6	25.8	25.1	23.8	22.8	21.8	21.9	24.7	26.5	26.0
23	24.9	25.8	24.8	24.8	25.3	25.8	25.8	24.4	22.9	22.0	21.7	22.6	24.8	25.8	25.8
24*	24.8	25.0	24.9	25.0	25.0	24.8	25.0	23.8	22.4	21.7	21.6	23.8	25.1	25.8	25.6
25	25.0	25.5	26.5	26.4	25.8	25.9	26.7	25.0	23.8	21.8	22.6	25.2	27.5	27.7	26.7
26	24.8	25.0	25.3	25.4	25.6	24.9	24.8	23.6	21.5	20.3	20.7	22.8	24.8	26.1	25.8
27	25.5	25.8	25.8	25.8	25.8	25.6	25.8	24.1	22.0	21.9	23.8	25.0	26.7	25.9	25.9
28	23.9	24.9	24.9	24.9	23.9	25.0	25.0	23.0	21.9	21.9	24.3	26.2	26.9	27.0	26.8
29	24.0	24.8	25.0	25.0	25.0	24.8	26.9	23.9	22.9	23.9	25.9	26.7	25.9	26.0	25.8
30	24.6	24.9	24.9	25.1	25.0	24.9	25.2	24.8	23.8	22.9	24.0	26.6	26.3	26.2	26.3
31*	24.8	24.9	25.1	25.0	25.9	24.9	24.9	23.4	22.7	21.5	24.6	28.0	29.1	27.9	25.9
Mean....	24.9	25.1	25.3	25.2	25.1	24.9	25.1	23.8	22.6	22.2	23.0	24.5	25.9	26.5	26.3
Mean*...	25.0	25.2	25.1	25.2	25.0	24.8	24.9	23.7	22.5	22.1	23.1	24.8	26.2	26.7	26.4

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

NOVEMBER, 1910.

2° WEST PLUS TABULAR MINUTES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
23.9	24.0	23.6	24.2	23.0	22.9	23.0	23.2	24.0	23.4	3 28	24.3	8 00	21.7	2.6 1
24.2	24.0	23.3	23.3	23.3	23.6	23.6	23.8	23.9	24.0	6 34	26.3	9 09	22.8	3.5 2
24.1	24.1	23.9	23.2	23.2	23.2	23.6	24.0	24.0	23.7	14 00	24.4	9 00	23.0	1.4 3
24.2	24.1	24.1	24.1	23.3	23.2	23.2	23.7	24.0	23.6	12 00	24.9	8 13	21.2	3.7 4
24.2	24.1	24.0	24.0	23.2	23.1	23.1	23.9	24.1	23.5	16 00	24.2	8 08	21.6	2.6 5
23.4	24.1	23.6	23.3	23.2	23.2	23.2	23.2	23.3	23.2	13 30	24.1	8 41	21.1	3.0 6
24.1	24.1	23.9	23.4	23.1	23.4	23.1	23.5	23.6	23.6	13 40	25.0	9 15	22.0	3.0 7
25.2	24.3	24.1	24.2	23.4	23.3	22.8	23.5	24.0	23.6	16 00	25.2	9 00	22.1	3.1 8
25.2	24.7	23.2	23.3	23.2	23.2	23.2	22.7	23.4	23.5	16 29	25.4	9 00	22.1	3.3 9
25.1	23.4	24.1	24.0	23.2	22.2	23.2	23.4	24.2	23.8	1 00	25.2	9 44	22.1	3.1 10
24.6	24.3	24.1	23.5	23.3	23.3	23.4	23.4	23.4	23.7	14 42	25.2	10 00	22.1	3.1 11
25.2	24.4	24.2	24.2	24.0	23.9	23.9	23.8	24.1	24.2	14 25	26.3	10 00	22.1	4.2 12
24.4	24.4	24.2	24.2	24.0	23.8	23.7	23.8	24.0	23.3	16 09	24.7	10 00	20.8	3.9 13
24.3	24.2	24.1	23.8	23.6	23.8	24.0	24.2	24.2	23.8	12 45	25.1	7 49	21.8	3.3 14
24.9	24.3	24.1	23.7	23.4	23.5	23.6	24.0	24.0	23.9	13 48	25.0	9 07	22.1	2.9 15
24.7	24.8	24.4	23.8	23.6	23.3	23.1	22.2	23.3	23.7	4 31	25.1	9 36	21.6	3.5 16
24.3	22.4	23.3	23.3	22.6	22.3	22.2	23.3	24.2	23.6	6 24	26.2	20 47	21.1	5.1 17
25.3	23.1	24.3	23.4	23.3	23.4	23.5	23.8	24.3	24.1	5 45	27.5	9 20	21.0	6.5 18
25.7	25.2	24.3	23.3	23.1	23.0	22.2	23.3	23.9	24.4	14 23	26.9	22 00	22.2	4.7 19
25.7	25.5	24.6	23.4	22.4	22.3	22.6	23.4	23.8	23.9	14 00	26.2	21 32	21.1	5.1 20
25.3	24.4	24.3	24.1	23.4	23.6	23.8	24.2	23.7	3 00	26.1	10 25	20.0	6.1 21	
25.6	25.0	24.4	23.7	23.4	23.4	23.4	23.6	24.0	24.1	14 00	26.2	9 27	20.3	5.9 22
25.4	24.4	24.4	24.2	23.4	23.4	23.4	23.5	23.9	24.1	14 22	27.0	9 33	20.4	6.6 23
25.5	24.4	24.3	23.7	23.5	23.4	23.3	23.4	23.9	24.1	13 10	27.9	9 25	20.4	7.5 24
24.4	25.3	24.4	23.6	23.2	23.2	23.4	23.7	24.3	24.1	4 46	25.3	9 00	22.4	2.9 25
25.2	24.4	24.2	24.1	24.2	24.2	24.2	24.3	24.4	24.4	13 29	25.9	10 00	22.5	3.4 26
24.4	24.4	24.2	23.9	23.3	22.4	23.4	23.5	24.2	24.0	13 12	25.3	20 34	21.3	4.0 27
24.9	26.3	25.3	24.8	24.3	24.0	23.6	23.9	24.2	24.2	16 38	26.4	9 33	21.3	5.1 28
26.2	26.4	23.9	24.3	23.3	23.5	23.5	23.5	24.5	24.6	7 18	26.6	10 00	23.5	3.1 29
25.8	26.2	25.2	24.2	24.3	23.6	22.9	24.5	23.5	24.4	16 45	26.3	22 21	22.2	4.1 30
24.8	24.5	24.1	23.8	23.4	23.3	23.3	23.6	23.9	23.9					4.0
24.5	24.2	24.1	23.8	23.5	23.4	23.5	23.7	23.9	23.7					3.6

DECEMBER, 1910.

2° WEST PLUS TABULAR MINUTES.

26.2	25.3	24.5	24.4	23.5	23.7	24.2	24.3	23.7	24.4	16 00	26.2	9 21	22.9	3.3 1
25.1	24.5	24.3	24.2	22.5	22.7	24.2	24.5	24.5	24.4	13 28	26.6	19 48	21.7	4.9 2
25.2	24.1	24.2	23.5	24.1	23.5	23.9	24.5	25.3	24.1	15 00	25.4	9 45	22.4	3.0 3
25.4	25.2	24.5	24.1	23.5	23.5	24.4	24.5	24.5	24.5	14 00	26.0	20 29	22.8	3.2 4
25.5	24.8	24.4	24.5	23.5	22.0	23.5	23.9	23.6	24.2	14 25	26.3	20 40	21.2	5.1 5
26.2	(25.2)	24.5	24.0	23.1	23.3	23.8	24.5	25.5	24.6	14 39	27.2	20 40	21.4	5.8 6
25.4	24.6	24.6	23.8	24.0	23.6	23.9	24.5	24.6	24.4	4 25	25.9	10 00	21.6	4.3 7
25.3	24.6	23.7	23.9	23.6	23.6	24.0	24.5	24.6	24.1	1 26	26.1	10 00	21.6	4.5 8
25.6	25.3	24.6	24.6	24.4	24.0	24.0	24.5	24.6	24.8	14 00	26.5	9 39	22.4	4.1 9
26.6	25.6	24.7	24.6	24.5	24.4	24.4	24.5	24.6	24.8	14 00	27.5	9 00	22.6	4.9 10
26.5	25.5	24.7	24.6	24.5	24.4	24.3	24.5	24.6	24.6	15 00	26.6	10 00	21.6	5.0 11
26.4	25.4	24.7	24.6	24.6	24.6	24.6	24.6	24.6	24.5	14 32	27.0	10 31	21.2	5.8 12
26.0	25.4	24.5	23.7	23.7	23.7	23.4	24.7	24.8	24.4	15 00	26.7	10 34	20.7	6.0 13
25.7	24.7	24.7	24.7	24.6	24.6	23.6	24.7	24.9	24.4	15 00	26.6	11 00	21.7	4.9 14
25.0	24.7	24.2	24.8	23.7	23.7	24.0	24.7	25.0	24.8	2 43	29.7	8 45	21.7	8.0 15
25.7	24.7	24.5	24.5	24.2	24.5	24.5	24.7	24.8	24.6	14 41	26.6	9 22	21.9	4.7 16
25.7	24.8	24.6	24.2	24.2	24.1	24.6	24.7	25.5	25.1	14 00	27.9	8 27	22.7	5.2 17
25.8	24.9	24.1	23.9	23.7	23.7	23.7	24.6	24.8	24.6	14 00	27.4	10 00	21.2	6.2 18
26.5	24.9	24.5	23.9	23.7	23.5	23.7	25.2	24.7	24.5	14 16	27.1	10 00	20.6	6.5 19
25.8	24.8	24.4	23.8	23.9	23.8	23.8	24.6	24.8	25.1	14 00	28.2	10 00	22.5	5.7 20
27.0	25.7	24.8	24.6	24.3	23.7	23.8	23.8	24.6	25.0	14 29	28.7	10 33	21.6	7.1 21
25.8	24.8	24.7	24.6	23.9	23.8	24.1	24.4	24.7	24.8	4 25	28.6	11 41	21.6	7.0 22
25.7	25.1	25.0	24.8	24.7	23.8	24.4	24.8	24.8	24.6	14 33	25.9	11 00	21.7	4.2 23
25.4	25.2	24.8	24.7	24.2	23.1	24.3	24.2	24.8	24.4	14 00	25.8	10 49	21.5	4.3 24
25.7	24.8	24.8	24.5	24.7	24.6	24.6	24.8	25.2	25.2	13 25	28.0	10 23	21.5	6.5 25
25.6	24.8	24.8	24.7	24.6	24.7	24.8	24.8	25.0	24.4	14 21	26.2	10 17	20.0	6.2 26
25.8	25.0	24.9	24.9	24.4	24.7	24.6	24.4	24.9	25.0	13 26	26.9	10 00	21.9	5.0 27
25.0	26.8	24.9	25.0	24.1	24.0	23.9	24.8	23.9	24.7	14 14	27.5	9 20	20.9	6.6 28
25.9	24.9	24.9	24.9	23.0	24.0	24.7	24.8	25.9	25.0	7 00	26.9	8 37	22.8	4.1 29
25.8	25.7	24.8	24.9	24.7	24.9	24.6	24.9	24.8	25.0	12 41	26.7	10 00	22.9	3.8 30
25.0	24.9	24.9	24.9	24.6	24.6	24.8	24.9	24.9	25.1	12 45	29.2	10 00	21.5	7.7 31
25.8	25.1	24.6	24.4	24.0	23.9	24.1	24.6	24.7	24.6					5.3
25.8	25.1	24.6	24.6	24.3	24.2	24.4	24.6	24.8	24.7					5.1

JANUARY, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	506	512	519	524	528	526	545	548	550	547	514	510	507	470	449
2	491	490	490	484	491	484	484	483	481	483	481	484	497	497	497
3	491	494	498	505	506	511	514	486	465	451	436	411	424	433	458
4	425	426	427	428	431	437	445	454	454	447	454	439	441	442	441
5	457	457	457	460	458	462	463	464	464	469	471	470	460	459	462
6*	471	471	471	473	473	473	474	479	480	480	479	467	461	463	471
7	481	480	477	475	475	475	479	481	481	481	485	484	481	482	481
8*	485	482	482	482	481	480	484	486	485	480	480	466	459	465	467
9*	491	492	491	491	497	498	502	498	497	496	497	496	490	490	489
10*	491	490	490	493	494	495	497	498	493	491	482	483	487	490	492
11*	496	496	495	496	496	496	497	498	497	494	486	484	482	486	490
12*	497	497	496	499	499	499	499	501	499	503	498	498	499	500	498
13	499	505	511	512	504	504	511	524	507	511	497	488	491	491	487
14	488	482	486	487	488	490	492	494	493	495	488	476	479	479	476
15	488	489	487	489	489	490	494	496	494	495	495	491	492	490	
16*	492	493	492	492	492	492	494	493	490	489	489	487	486	485	484
17*	491	491	491	491	492	495	497	499	500	498	496	490	491	491	489
18	487	485	485	491	486	488	492	492	485	485	485	485	480	473	469
19	486	486	489	491	494	494	499	503	508	513	509	503	...	...	...
20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21*	496	496	494	497	496	500	504	513	508	511	514	500	484	477	485
22*	492	493	493	496	498	497	499	499	494	486	481	474	470	472	479
23	498	499	501	501	501	503	508	514	514	510	513	511	510	512	520
24	494	498	500	502	502	501	509	514	511	508	513	510	503	506	509
25	489	475	473	483	482	491	507	522	514	512	518	521	513	511	477
26	457	467	472	474	475	474	485	496	500	501	500	493	488	488	486
27	484	486	491	496	499	517	509	513	505	487	481	479	467	464	464
28	476	476	479	482	483	482	487	497	476	477	482	488	482	469	441
29	483	483	481	486	486	498	507	505	508	515	517	508	499	503	495
30	462	461	494	477	460	456	472	476	490	475	479	476	466	460	
31	381	389	398	416	412	513	467	479	463	462	449	430	434	443	435
Mean.....	481	481	483	486	485	491	494	497	493	491	488	483	480	479	477
Mean*....	490	490	490	491	492	492	495	496	494	493	490	484	481	482	484

FEBRUARY, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

1	451	452	453	455	456	457	462	465	465	464	462	448	443	445	448
2	457	460	473	461	451	457	458	468	479	488	481	468	455	452	452
3	445	439	447	451	453	452	453	457	462	467	467	461	470	463	448
4	469	465	467	467	468	467	473	478	487	494	500	500	503	498	497
5	474	474	473	476	474	475	476	478	478	474	488	493	491	488	
6	488	488	486	483	483	491	491	489	482	478	468	460	459	439	459
7	469	469	471	472	472	475	476	477	474	475	473	475	478	479	
8	468	469	472	473	473	474	479	471	469	465	468	475	477	475	476
9	473	467	472	476	485	491	499	497	495	501	501	499	498	493	491
10	470	471	473	475	477	479	487	492	502	504	504	496	485	487	488
11*	477	476	478	479	482	483	488	495	499	503	501	497	489	491	492
12	481	481	483	483	488	489	495	503	505	504	501	499	500	501	502
13*	481	486	489	490	493	490	501	512	518	517	509	512	510	508	499
14*	492	495	495	497	502	499	505	514	519	518	514	505	490	484	488
15*	490	490	493	494	495	494	499	506	510	515	520	513	504	497	
16*	496	496	498	499	501	501	509	515	518	518	516	513	506	501	497
17*	492	491	489	494	496	498	501	506	513	508	509	513	510	504	501
18*	489	491	489	492	494	496	498	502	506	504	500	501	499	498	494
19*	493	493	494	496	498	497	505	514	516	516	516	517	516	512	505
20*	498	499	499	500	501	502	507	514	519	524	519	520	516	513	508
21	485	485	483	483	488	491	500	510	521	524	524	521	527	509	492
22	478	478	484	484	482	477	498	512	513	510	498	489	484	481	473
23	475	476	482	486	472	472	474	483	474	475	465	465	466	455	470
24	484	477	484	481	486	486	486	497	485	479	485	478	475	475	477
25*	480	481	482	482	481	478	487	499	503	498	492	485	(484)	484	(486)
26	487	488	490	491	492	493	500	508	511	514	519	522	519	525	516
27	499	493	490	494	497	498	505	516	522	523	519	513	512	506	500
28	470	471	476	479	481	481	492	509	522	524	521	518	512	506	494
Mean.....	479	479	481	482	483	484	489	496	499	499	498	495	492	489	486
Mean*....	489	490	491	492	494	494	500	508	512	512	510	508	503	500	497

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

JANUARY, 1909.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
<i>I</i>	<i>r</i>	505	<i>h</i>	<i>m</i>	<i>r</i>									
472	477	482	480	496	492	486	481	489	505	9	00	550	14	38
493	495	494	499	492	491	494	491	490	490	12	49	503	9	49
385	354	381	397	382	397	392	410	423	442	7	19	520	16	36
444	449	446	445	451	456	452	456	457	444	24	00	457	0	00
465	470	468	470	470	470	470	470	470	465	11	18	473	2	00
477	480	482	481	482	484	482	481	481	476	20	21	485	13	00
481	481	480	481	481	483	483	484	483	481	10	45	486	6	00
472	474	477	479	480	481	483	484	488	478	24	00	488	13	00
488	488	489	489	490	490	490	490	490	492	7	00	502	16	00
491	494	497	497	496	496	494	490	492	492	8	00	498	11	00
490	495	496	496	496	495	497	497	497	494	8	00	498	13	00
494	494	495	495	496	496	498	497	498	498	10	00	503	16	00
485	480	480	479	481	484	479	480	475	494	8	00	524	24	00
480	481	481	481	482	481	480	481	482	484	10	00	495	12	23
489	491	490	491	491	491	491	491	491	491	8	00	496	0	00
481	483	487	489	484	486	488	489	489	489	7	00	494	16	00
492	497	502	497	493	492	494	490	490	484	19	00	502	15	00
466	469	474	480	483	482	484	484	484	482	8	00	492	15	18
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
492	493	492	492	492	491	490	491	490	496	10	39	515	14	12
481	488	491	493	496	496	496	498	490	490	8	00	499	13	09
511	508	503	503	497	495	495	491	491	505	15	00	520	24	00
512	512	516	512	515	515	512	508	507	508	17	20	523	0	00
455	422	429	430	447	448	452	457	457	479	8	30	525	17	17
481	473	472	469	478	482	482	482	488	481	10	30	508	0	13
467	469	465	480	474	469	471	477	477	483	4	58	523	13	23
438	438	453	463	478	476	474	474	491	473	8	00	497	15	21
487	484	497	436	442	426	448	470	472	484	10	47	421	21	22
471	440	437	429	360	340	391	382	443	300	494	21	60	422	99
401	396	413	431	432	444	443	457	451	435	6	03	518	0	20
474	472	475	475	474	472	474	477	478	482					52
486	489	491	491	491	491	491	491	491	490					20

FEBRUARY, 1909.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

446	445	454	459	461	475	469	473	497	459	24	00	497	12	40
438	438	432	435	435	431	428	431	452	452	9	44	502	17	48
443	451	451	453	456	458	461	470	468	456	23	09	473	0	09
487	480	475	474	478	478	479	479	474	481	12	50	505	1	46
479	474	474	478	474	484	469	472	469	478	20	33	501	22	21
446	421	445	458	462	464	433	454	455	488	1	22	496	17	14
477	475	459	446	453	460	463	461	463	477	14	12	480	19	08
475	473	473	473	469	468	475	477	477	473	7	03	479	0	00
484	482	480	482	475	465	464	466	468	484	7	37	504	22	20
483	477	473	473	476	475	476	475	474	482	10	37	506	0	00
483	479	476	476	481	482	479	479	481	485	10	06	503	0	39
496	490	491	490	490	485	479	475	477	491	8	49	506	23	00
495	483	486	489	492	491	487	488	490	496	9	00	518	0	00
487	491	491	491	486	487	486	488	490	496	9	00	519	13	42
494	493	497	497	492	494	494	496	495	500	11	33	521	20	50
493	499	500	499	494	431	490	490	489	501	9	74	521	24	00
496	491	489	489	486	487	485	486	488	497	8	33	517	17	27
489	488	488	489	489	489	489	492	493	494	9	00	506	16	34
503	499	499	499	499	499	499	498	500	503	12	15	518	0	08
503	498	488	492	494	493	492	488	481	503	10	00	524	23	56
501	502	493	479	458	451	462	461	491	493	12	43	534	20	33
476	473	477	476	469	471	477	472	482	484	8	33	517	17	27
467	474	474	466	471	476	459	500	486	475	23	00	500	14	06
471	473	475	486	480	482	482	479	479	481	8	00	497	18	29
(489)	493	493	494	491	488	485	485	486	488	8	48	504	6	00
503	508	500	494	494	492	488	487	487	501	13	44	527	0	00
490	483	472	469	466	461	467	467	470	493	9	30	524	20	54
484	475	474	473	476	475	474	472	474	489	10	00	524	17	28
481	479	478	478	477	477	477	477	479	485					43
493	491	491	492	490	490	489	489	489	496					32

† Estimated.

MARCH, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	474	477	481	482	484	487	493	500	509	513	513	501	495	485	
2	481	483	479	481	480	483	493	502	507	502	494	493	497	482	
3	481	484	487	489	490	493	498	498	502	504	510	514	503	489	489
4	442	437	447	468	474	478	482	487	485	482	478	476	475	473	466
5	471	475	478	476	478	480	483	502	513	516	518	512	496	475	457
6	460	463	448	452	448	451	459	464	474	479	481	484	478	473	469
7	476	477	477	471	473	472	474	474	480	476	470	469	471	470	470
8	476	480	481	481	480	479	484	487	490	485	480	478	476	481	481
9*	479	480	483	485	485	483	484	485	483	479	476	479	478	478	473
10*	470	473	475	477	480	480	486	497	499	494	492	489	485	483	480
11*	476	473	480	476	487	487	495	502	507	508	509	506	501	491	
12*	486	488	491	493	493	492	495	498	500	499	503	506	503	498	491
13*	477	479	483	487	486	486	495	499	511	518	516	519	512	501	492
14	484	488	484	491	492	492	496	502	508	509	505	501	499	481	
15*	473	477	486	485	486	488	496	504	507	507	502	498	496	490	484
16*	486	488	489	491	490	491	494	501	509	513	515	513	507	498	489
17*	478	480	484	486	490	488	497	505	503	503	506	509	506	498	490
18	484	486	485	490	489	498	512	515	520	504	495	476	478	496	481
19	468	479	473	480	487	490	487	501	469	438	420	396	412	391	382
20	435	435	440	439	437	438	444	450	456	459	466	474	475	469	465
21	438	440	468	448	448	456	468	485	474	462	467	467	472	473	454
22	443	441	447	452	455	455	472	484	489	486	480	482	471	460	456
23	432	459	459	457	460	462	470	476	479	478	479	478	476	463	
24*	461	461	463	466	469	469	469	474	473	470	473	478	478	476	472
25	467	472	475	474	473	473	478	482	483	482	504	494	487	491	481
26	459	462	464	466	465	466	473	476	481	479	475	450	464	472	470
27	458	459	462	417	478	480	485	486	487	489	497	496	498	482	470
28	437	456	460	463	464	488	470	475	485	483	457	434	427	435	428
29	382	443	440	420	444	456	464	468	483	479	478	473	463	452	440
30	442	445	448	453	453	456	459	461	460	468	475	477	465	456	458
31*	459	461	464	415	468	469	468	467	469	472	479	481	479	464	465
Mean.....	463	468	470	472	474	476	481	487	490	488	488	485	482	477	470
Mean*....	474	476	480	481	483	483	488	493	496	496	497	498	495	489	483

APRIL, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

1	459	461	463	463	469	467	470	474	478	480	478	473	471	476	472
2	467	466	468	473	472	474	476	477	478	483	494	497	493	488	483
3*	475	476	476	476	477	479	482	486	491	500	503	501	495	494	486
4*	481	476	477	475	476	477	482	487	491	498	508	509	507	507	500
5	481	482	484	500	488	487	484	487	493	503	509	506	503	505	496
6*	480	481	482	484	485	485	482	478	477	484	491	494	495	496	492
7*	482	485	485	487	488	487	485	483	492	500	501	503	503	499	
8*	486	484	486	485	485	485	485	483	483	486	492	492	491	494	491
9*	492	489	489	489	489	489	496	500	503	504	501	501	501	496	
10	482	481	482	483	486	485	506	509	507	494	494	480	486	483	
11	486	490	488	491	491	494	500	497	500	503	504	501	494	489	479
12	473	478	482	494	487	483	490	502	504	510	512	500	484	477	
13	477	477	479	480	482	485	488	489	490	489	484	486	482		
14*	484	483	481	482	484	484	490	495	500	506	503	496	506	485	480
15*	484	485	487	489	491	493	499	502	502	508	505	498	496	496	
16	479	464	473	477	472	495	495	489	494	498	497	493	489	487	492
17	457	462	467	474	473	472	470	470	477	477	477	477	477	477	
18	477	477	482	479	476	472	468	473	481	497	499	496	496	493	479
19	469	471	472	473	473	473	465	466	474	489	491	496	495	492	484
20	476	476	477	479	477	471	464	461	459	458	452	450	452	461	466
21*	481	478	476	476	476	476	472	472	473	480	485	487	487	488	487
22*	485	484	485	485	484	483	475	473	479	489	490	490	490	493	493
23	486	490	490	489	486	482	476	478	478	478	477	476	479	488	491
24	478	478	480	481	482	482	485	486	489	492	491	497	506	477	
25	477	477	477	477	477	477	477	477	477	477	477	477	477	477	
26	477	477	477	477	477	477	477	477	477	477	477	477	477	477	
27	477	477	477	477	477	477	477	477	477	477	477	477	477	477	
28	477	477	477	477	477	477	477	477	477	477	477	477	477	477	
29	477	477	477	477	477	477	477	477	477	477	477	477	477	477	
30	477	477	477	477	477	477	477	477	477	477	477	477	477	477	
Mean.....	479	479	480	482	482	482	483	485	487	492	494	492	491	490	486
Mean*....	483	482	482	483	484	484	485	486	488	495	498	497	497	496	492

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

MARCH, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
485	487	483	479	479	481	481	480	479	489	11	34	515	1	44
487	484	481	481	481	481	482	480	484	488	9	00	507	0	11
488	486	482	465	453	479	464	452	444	485	12	20	520	24	00
402	461	465	467	468	470	473	471	472	469	8	22	488	2	02
452	465	456	457	450	450	454	447	450	475	10	31	519	23	20
464	463	468	472	472	470	475	476	473	467	12	12	484	3	24
466	461	464	461	461	457	471	470	471	470	9	00	480	20	48
482	482	478	472	475	477	479	479	480	480	9	00	490	0	00
473	473	470	471	463	463	466	467	470	476	7	38	485	21	16
483	483	483	483	483	485	484	481	476	483	8	42	500	0	40
487	489	486	490	488	487	486	488	485	491	11	47	509	2	09
490	491	491	483	484	483	484	481	486	492	12	14	506	23	36
488	487	483	483	484	485	479	479	481	492	12	03	519	1	00
463	460	463	472	469	466	464	469	469	485	10	55	510	17	06
481	483	485	485	485	485	485	485	485	489	9	36	509	0	00
485	483	487	485	483	481	476	471	470	491	11	00	515	23	35
488	489	489	490	487	484	486	484	484	492	12	00	509	0	36
470	464	457	464	473	473	472	471	469	484	8	41	521	17	53
381	353	352	390	404	410	416	426	439	431	7	58	502	17	17
457	454	449	450	454	454	446	434	434	451	12	25	481	23	34
444	414	420	399	425	416	438	451	441	449	8	24	489	19	35
457	453	460	447	463	455	452	450	456	461	9	08	489	2	00
464	460	459	459	459	458	461	460	458	466	13	22	482	17	40
471	466	466	468	466	468	467	467	465	469	13	22	480	0	00
482	465	448	445	443	447	452	456	457	471	11	00	504	18	29
460	448	454	457	455	470	462	457	461	464	8	42	484	16	36
448	443	419	399	422	419	427	446	438	461	13	24	510	18	57
416	413	398	386	414	409	415	424	403	439	6	22	493	19	06
435	440	447	442	441	444	442	441	443	449	9	19	486	0	25
459	463	464	462	461	459	457	458	459	459	11	31	479	0	16
468	469	461	442	443	453	459	460	463	464	11	11	481	19	00
466	462	460	458	461	462	463	463	463	472					54
481	481	481	478	477	477	477	476	476	484					35

APRIL, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

## PORTO RICO MAGNETIC OBSERVATORY.

MAY, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7*	485	486	487	485	483	484	488	493	504	509	515	511	502	491	485
8*	483	485	485	478	481	482	482	480	488	493	496	496	496	495	489
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10*	488	488	492	501	498	500	498	497	499	505	504	494	486	483	485
11	485	499	489	489	485	485	484	482	476	472	461	460	462	472	480
12	470	470	473	476	477	479	480	481	478	472	481	485	486	486	485
13*	471	474	474	479	480	480	479	482	486	492	492	492	485	483	473
14	535	460	421	400	403	415	432	409	398	404	404	401	336	254	219
15	373	370	375	370	381	385	386	412	439	443	434	424	417	418	413
16	432	427	421	418	418	415	410	408	414	420	423	424	427	430	427
17*	435	434	435	436	436	435	432	430	438	447	451	452	449	444	441
18	471	476	469	437	447	454	454	447	444	447	445	434	412	381	369
19	411	412	417	418	420	414	419	420	425	415	420	432	430	420	420
20	434	435	435	436	436	440	449	453	455	456	458	458	457	455	449
21	447	447	449	448	447	449	447	443	444	449	453	456	454	458	458
22*	453	463	457	452	452	456	460	466	475	482	481	478	465	458	448
23*	455	464	452	453	454	457	464	468	468	464	462	459	449	443	437
24*	449	451	451	453	454	459	464	467	463	461	463	460	459	461	461
25	462	463	465	467	467	470	471	474	477	480	485	482	476	472	479
26	480	476	473	475	472	481	476	474	468	459	448	442	441	442	448
27	454	457	469	461	462	467	463	454	457	458	454	451	451	461	462
28	461	470	457	459	462	465	471	474	470	467	471	467	470	468	469
29*	460	462	467	469	470	470	473	476	479	480	483	484	482	479	468
30*	460	459	458	461	463	462	462	465	472	474	472	471	474	475	472
31	467	468	471	473	479	482	488	492	494	499	487	488	482	473	468
Mean...	459	458	456	454	455	458	460	460	463	464	464	463	456	450	446
Mean*...	464	466	466	467	467	468	470	472	477	481	482	480	475	471	466

JUNE, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	12 <sup>h</sup>	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	459	465	465	467	470	476	483	483	483	479	470	470	473	473	466
2	459	462	462	462	461	462	468	465	470	467	463	457	454	454	461
3*	465	466	467	467	468	471	469	468	472	476	480	476	476	476	475
4*	468	468	468	468	471	473	469	463	460	460	472	481	487	490	492
5*	469	469	474	473	473	476	475	474	467	467	467	478	485	483	481
6	472	475	475	472	470	471	472	472	469	468	472	466	469	477	478
7	475	477	479	477	477	476	478	474	475	479	487	490	497	506	501
8*	468	469	468	471	471	472	469	466	472	477	483	485	487	485	479
9*	469	469	471	472	473	475	476	475	478	481	482	477	475	475	4/1
10*	475	478	480	482	483	484	478	484	494	501	498	489	481	477	473
11	474	473	480	478	480	484	491	487	480	477	469	460	460	454	445
12	454	455	457	455	457	460	462	464	463	465	462	458	459	468	469
13	461	460	464	466	469	471	467	464	461	464	461	457	459	461	467
14	468	469	470	475	475	482	481	482	479	477	478	470	462	474	469
15	460	460	461	472	466	473	482	483	491	491	498	496	485	473	463
16	465	461	459	459	457	460	457	457	459	462	455	462	466	475	469
17	456	462	463	461	459	463	458	452	454	459	459	467	467	473	472
18	457	459	460	462	463	462	456	453	456	467	469	466	464	464	458
19	464	463	464	464	461	460	462	466	465	468	468	465	470	472	466
20*	470	468	469	468	468	468	464	465	466	473	486	490	490	487	480
21	478	508	506	496	496	497	(490)	(480)	475	482	488	500	491	476	475
22	469	471	472	474	474	474	471	470	476	485	490	484	478	465	457
23	441	440	443	448	455	461	472	472	463	465	467	459	450	453	453
24	451	454	458	462	459	459	456	456	454	459	459	458	457	460	461
25*	457	458	457	458	457	462	465	471	474	475	475	473	472	463	463
26*	447	448	453	459	458	460	464	468	467	467	479	467	471	474	468
27*	465	464	465	466	469	471	471	468	466	474	479	484	487	487	478
28	473	471	482	482	479	477	476	468	467	470	472	483	486	479	4/9
29	472	465	454	460	463	462	464	461	462	471	470	466	468	463	462
30	465	463	462	465	465	467	468	469	471	477	479	478	481	474	465
Mean...	464	466	467	468	468	470	470	469	470	472	474	474	474	473	470
Mean*...	465	466	467	468	469	471	470	470	472	475	479	480	481	480	476

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

MAY, 1909.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum			Minimum			Range	Day	
483	481	481	481	481	483	485	485	485	483	488	11	00	515	18	09	474	41	1
481	478	478	476	479	480	481	481	480	481	485	11	21	499	17	00	475	24	2
482	475	475	480	483	486	486	(486)	(486)	485	490	10	31	507	21	29	478	29	3
484	480	484	484	484	481	480	483	483	480	490	10	31	507	21	29	478	29	4
480	481	481	479	471	470	464	462	470	477	477	2	00	499	11	26	455	44	5
481	474	480	477	476	472	469	470	470	477	477	14	23	488	23	18	468	20	6
473	477	482	481	484	485	488	484	484	482	482	11	30	494	0	00	470	24	7
275	266	309	340	423	343	352	436	378	376	376	0	41	564	15	27	182	382	8
414	407	408	413	418	432	422	451	433	410	410	22	54	452	0	26	357	95	9
422	422	424	430	437	434	437	435	437	425	425	22	00	437	7	21	408	29	10
438	437	438	440	441	442	449	444	438	440	440	11	30	452	7	45	429	23	11
358	362	339	330	356	376	391	392	394	412	412	2	33	483	19	09	325	158	12
411	418	424	427	430	433	434	433	434	423	423	12	19	434	0	00	394	40	13
445	437	436	434	439	444	444	445	446	445	445	12	17	459	19	36	434	25	14
452	452	448	448	451	448	449	451	453	450	450	12	06	458	8	00	443	15	15
452	446	444	445	451	453	454	456	456	458	458	10	31	482	18	12	443	39	21
442	445	448	447	450	450	450	449	453	453	453	9	05	469	15	00	437	32	22
457	456	456	457	459	460	463	463	460	459	459	8	00	467	0	00	449	18	23
480	465	468	472	497	485	477	477	482	475	475	19	56	499	0	00	460	39	24
446	448	448	453	447	450	453	454	460	459	459	0	00	482	13	00	441	41	25
457	452	454	456	459	460	458	456	456	458	458	2	34	471	11	39	449	22	26
472	469	464	464	465	463	462	463	463	466	466	1	24	477	0	24	451	26	27
465	460	460	463	463	464	463	463	462	469	469	11	13	485	17	36	459	26	28
467	462	464	467	467	467	467	468	468	466	466	10	07	475	3	00	458	17	30
464	462	456	450	456	456	459	462	461	472	472	9	50	499	19	00	450	49	31
446	443	444	446	454	451	452	457	454	455	455							52	
464	462	463	464	466	467	468	468	467	469	469							27	

JUNE, 1909.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

460	457	461	458	460	466	465	462	460	468	8	46	488	1	00	459	29	1
461	461	461	463	463	463	466	464	464	462	8	44	470	13	27	451	19	2
474	475	475	472	472	469	470	469	466	471	11	00	480	0	21	463	17	3
484	475	473	474	477	475	472	465	465	473	14	55	492	9	08	459	33	4
481	475	471	473	470	470	467	467	470	473	13	00	485	9	47	464	21	5
470	464	462	460	463	467	469	465	474	470	14	18	480	18	46	460	20	6
489	480	476	477	474	475	471	470	468	480	13	56	506	23	31	468	38	7
473	469	466	465	465	466	465	465	466	472	13	29	488	22	33	464	24	8
471	470	472	474	474	477	476	475	480	474	10	32	483	0	00	466	17	9
469	471	473	475	475	473	473	472	472	480	10	11	502	16	00	469	33	10
443	437	433	431	434	439	448	452	454	461	7	12	492	18	24	429	63	11
467	467	465	464	464	462	462	461	461	462	14	32	470	1	32	451	19	12
471	467	459	454	456	460	468	465	468	463	15	28	473	19	23	450	23	13
459	454	448	456	459	458	459	460	460	468	6	14	484	17	28	445	39	14
457	458	457	464	463	467	464	466	481	472	11	00	498	1	17	456	42	15
464	457	456	458	463	464	461	460	458	461	0	00	481	18	18	455	26	16
467	457	453	453	455	463	459	456	456	460	15	16	473	8	14	451	22	17
453	451	453	453	459	458	464	463	462	460	10	36	469	17	23	449	20	18
459	455	458	462	463	464	464	463	463	464	13	55	472	17	00	455	17	19
474	466	465	468	471	473	471	473	472	473	13	00	490	0	00	463	27	20
476	464	465	474	476	476	470	470	470	482	2	15	511	16	41	462	49	21
456	450	443	444	441	439	448	436	437	462	11	05	497	21	14	432	65	22
451	448	445	448	451	448	442	445	446	453	7	34	475	22	33	435	40	23
450	449	448	454	457	456	454	454	454	456	4	00	462	0	18	444	18	24
458	455	452	451	460	453	453	454	448	461	10	30	476	24	00	448	28	25
466	465	464	462	464	466	464	463	463	463	13	32	476	1	00	447	29	26
474	469	468	469	471	470	470	479	474	472	13	27	488	0	00	463	25	27
481	476	472	471	477	459	447	455	455	472	3	15	488	22	17	447	41	28
458	459	462	459	452	468	456	462	459	462	0	30	478	19	53	449	29	29
462	457	456	454	454	456	458	460	458	465	11	06	481	20	00	454	27	30
466	462	460	461	463	463	463	462	463	467	467						30	
472	469	468	468	470	469	468	468	468	471							25	

JULY, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	456	460	457	460	460	465	459	461	461	464	461	458	456	465	459
2	464	464	462	465	458	455	469	477	484	498	499	495	492	486	478
3	466	472	474	468	471	462	471	468	458	463	465	472	476	471	467
4	462	464	459	467	463	460	474	483	486	492	495	485	477	474	473
5	459	461	461	461	460	459	460	465	472	479	474	466	459	459	457
6*	462	463	463	463	463	465	470	471	474	485	490	491	490	486	475
7*	464	466	466	465	466	467	467	466	470	478	484	486	487	486	484
8	475	483	478	471	468	476	483	486	486	485	472	458	451	450	456
9	452	454	455	454	455	463	467	470	470	471	470	458	462	463	456
10*	455	457	460	461	461	466	469	467	466	473	483	489	491	487	476
11*	466	464	466	466	467	469	475	480	486	486	489	486	490	486	489
12	456	458	467	464	465	468	469	472	475	481	488	482	461	467	460
13	453	478	462	460	458	453	445	445	464	477	475	472	465	462	455
14	454	458	456	457	457	457	463	471	481	489	482	472	466	455	455
15	454	451	448	451	454	452	451	455	458	462	468	466	465	461	457
16*	456	454	453	451	454	453	453	461	476	477	473	472	466	464	462
17*	460	462	463	462	463	460	454	455	458	474	480	482	481	473	470
18*	457	457	456	457	457	457	458	459	465	469	467	465	469	470	463
19*	463	463	463	464	464	461	461	466	474	476	477	475	472	466	456
20*	461	461	456	461	461	463	472	483	492	494	495	497	491	488	479
21	467	467	469	466	466	464	464	471	475	486	486	486	484	472	460
22	467	460	458	454	455	460	463	466	466	462	459	447	448	461	461
23	434	432	441	454	455	454	462	477	475	469	463	469	471	464	466
24	442	432	434	439	440	444	450	443	440	436	444	445	434	449	455
25	453	445	441	444	446	446	444	453	463	464	462	460	457	461	460
26	449	454	440	449	450	452	455	455	463	466	461	460	459	460	458
27	452	453	457	454	453	455	458	462	468	477	478	457	441	439	436
28	449	450	449	450	450	453	458	461	472	475	467	464	466	464	466
29	459	453	457	454	450	453	458	456	456	458	457	454	452	442	437
30	457	452	448	449	449	454	450	446	452	455	459	458	459	457	444
31*	453	454	453	455	452	451	449	455	468	475	474	470	461	452	446
Mean.....	457	458	457	458	458	459	461	465	470	474	474	471	467	465	461
Mean*....	460	460	460	460	460	461	463	467	473	479	481	481	479	475	470

AUGUST, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

1	452	454	457	454	453	454	450	444	457	479	493	491	491	478	458
2	457	453	449	442	442	448	453	455	454	451	460	461	469	462	458
3	455	450	451	451	444	457	446	449	461	467	460	456	438	433	437
4	447	448	449	452	449	449	450	448	447	446	452	453	452	446	442
5*	450	449	450	448	453	450	451	453	457	459	456	451	441	438	437
6*	450	450	453	453	450	451	451	448	447	455	462	463	469	476	471
7	450	472	475	474	473	471	460	458	454	464	465	461	454	450	437
8	447	448	450	452	451	453	455	468	482	494	497	494	495	490	475
9	427	439	434	423	429	430	445	445	443	435	424	421	416	420	427
10	439	445	440	444	450	451	444	454	458	473	478	467	456	457	430
11	445	446	444	445	445	444	441	462	470	467	466	463	455	459	441
12	448	449	445	448	448	448	447	454	462	468	469	463	457	428	423
13*	443	446	445	445	446	449	449	455	462	463	453	448	451	447	445
14*	447	447	447	446	443	445	447	452	457	459	462	460	453	451	451
15*	448	444	444	445	442	442	442	444	441	444	441	445	444	444	444
16*	451	453	452	451	450	450	449	455	467	472	478	478	475	467	458
17*	451	454	453	459	457	454	456	464	470	473	469	460	453	444	447
18	456	457	457	455	455	457	457	463	462	469	468	470	463	458	453
19	438	433	445	442	441	444	444	444	439	441	444	431	427	425	432
20	438	440	448	444	444	447	446	438	440	441	440	440	436	441	441
21*	444	448	447	446	443	445	443	437	439	445	457	459	457	454	451
22	438	448	440	439	441	442	438	437	445	447	444	439	437	439	439
23*	438	438	442	441	442	440	434	437	447	450	456	457	454	448	441
24*	449	448	449	452	448	449	451	457	459	463	470	470	464	455	446
25	438	436	440	441	444	445	448	459	471	474	468	460	454	448	442
26	431	437	443	440	443	445	449	449	448	441	443	448	447	438	420
27	429	435	429	434	437	440	436	434	437	436	438	432	431	430	430
28	438	438	438	438	439	438	438	439	450	459	461	459	457	453	454
29	426	447	440	435	421	419	424	424	428	431	426	411	404	414	399
30	431	434	427	427	425	417	421	426	434	427	437	432	422	423	419
31	426	427	429	432	426	426	419	414	423	426	431	425	425	420	421
Mean.....	443	446	446	445	444	445	445	447	453	456	457	454	450	446	441
Mean*....	447	448	448	449	447	448	447	451	456	459	461	459	457	453	449

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks

JULY, 1909.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

AUGUST, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

## PORTO RICO MAGNETIC OBSERVATORY.

SEPTEMBER, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>	
1	γ	427	425	438	434	431	421	422	413	422	426	429	430	427	425	420
2		432	432	431	433	432	428	419	435	428	432	432	436	426	424	424
3		452	457	443	439	439	435	433	443	453	469	461	452	443	449	441
4		437	430	441	438	442	430	438	437	431	436	439	440	441	443	438
5		441	440	444	446	449	450	446	432	434	435	436	434	430	424	417
6		440	438	439	440	439	437	434	439	443	443	437	433	426	439	423
7		436	448	442	442	444	446	446	446	443	439	439	427	425	425	427
8		437	440	443	439	436	443	446	447	437	433	422	424	425	419	418
9		435	434	432	436	435	436	(437)	(438)	438	436	437	438	438	436	435
10*		435	436	439	441	443	444	444	447	454	454	456	451	446	442	432
11*		438	438	438	438	441	441	442	445	450	451	450	448	445	438	434
12*		439	439	440	441	442	442	437	433	442	450	459	461	461	459	449
13*		447	446	444	444	444	443	440	434	440	458	462	462	464	462	454
14		446	443	446	440	440	442	442	445	452	454	455	454	453	448	446
15		456	445	438	444	447	444	437	430	430	436	444	448	446	446	441
16*		443	447	445	446	446	451	453	456	456	453	446	443	438	435	433
17*		441	440	437	442	441	441	442	439	441	446	453	453	455	455	450
18*		443	446	446	445	447	448	452	457	461	264	465	462	461	456	450
19*		447	448	452	454	453	454	454	458	461	461	459	458	455	450	449
20*		454	454	457	457	456	459	462	465	466	464	464	462	464	467	463
21		435	435	438	442	446	445	463	468	462	442	433	422	406	411	406
22		407	414	418	417	419	420	425	423	422	427	431	433	432	433	431
23		428	427	426	440	437	440	436	433	431	428	431	422	419	425	426
24*		434	437	437	439	439	440	435	440	442	440	439	436	434	436	433
25		437	438	438	441	457	453	440	-201	097	356	301	074	-108	-146	-119
26		230	241	252	256	269	264	268	274	273	278	286	288	297	303	303
27		320	323	326	328	329	328	329	329	328	328	329	328	328	326	322
28		353	351	359	363	353	355	355	352	335	332	331	336	355	361	363
29		369	370	370	368	373	376	375	370	371	372	374	383	381	367	358
30		387	393	395	381	390	395	395	371	363	365	341	343	348	309	303
Mean....		421	422	423	424	425	425	425	403	414	424	421	413	405	402	399
Mean*....		442	443	444	445	445	446	446	447	451	454	455	454	452	450	445

OCTOBER, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

1	338	342	346	348	351	353	353	358	367	367	372	371	369	364	360
2	363	364	390	376	377	379	384	379	379	382	390	385	364	365	366
3	371	372	374	379	380	380	386	393	399	399	389	390	391	387	380
4	372	377	377	382	379	382	388	393	401	405	406	403	398	390	382
5*	380	380	379	381	383	385	389	392	395	395	395	398	400	399	393
6	385	386	387	387	389	389	391	389	386	380	378	377	377	378	379
7	387	384	388	390	394	395	395	388	385	376	376	370	371	368	
8	354	364	374	376	375	379	385	382	378	387	386	385	373	367	
9	369	370	376	386	(387)	(388)	(389)	(387)	386	389	388	383	386	380	379
10*	384	385	387	390	390	392	395	401	406	408	412	419	414	401	398
11*	391	391	391	392	392	394	396	403	406	410	411	408	404	397	394
12	385	387	387	390	391	391	395	400	408	418	416	412	410	403	397
13	401	400	402	402	402	401	399	396	394	397	398	400	394	393	393
14*	404	405	406	408	409	413	419	418	420	421	421	421	422	421	418
15*	408	413	408	406	403	406	410	411	414	413	413	416	422	424	415
16*	405	406	405	406	407	408	406	409	408	405	402	401	400	401	401
17*	405	407	408	411	412	414	414	415	417	415	412	413	403	403	402
18	403	419	411	415	407	408	410	421	421	419	420	412	413	408	
19	330	333	336	338	379	375	382	389	392	382	365	349	341	329	330
20	381	378	375	379	377	379	386	393	386	392	391	391	390	381	378
21	382	385	389	391	394	395	394	393	390	387	390	387	378	384	385
22	391	386	387	390	393	394	398	404	406	402	400	396	395	392	403
23	362	380	373	375	380	403	403	377	387	377	342	307	305	305	311
24	362	370	375	382	---	---	---	---	---	380	356	357	357	362	
25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
26	385	382	386	388	389	386	393	401	396	393	393	393	388	388	381
27*	392	391	391	394	398	401	401	405	408	411	407	404	401	395	388
28*	399	400	401	401	403	406	414	421	430	433	430	423	412	401	397
29	399	399	395	395	396	398	402	404	405	404	402	397	392	389	391
30*	399	399	402	405	407	408	414	415	412	405	412	415	412	410	411
31	399	398	399	400	402	401	401	400	398	396	398	398	399	397	401
Mean....	384	386	387	389	391	393	396	398	399	399	397	394	390	387	385
Mean*....	397	398	398	399	400	403	406	409	412	411	411	412	408	404	401

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

53

SEPTEMBER, 1909.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day			
421	418	423	420	418	422	425	433	429	425	425	3 09	440	7 50	411	29	1
427	428	427	419	426	431	437	446	444	430	22 48	451	19 27	418	33	2	
435	436	432	422	404	395	409	430	441	438	9 51	469	20 29	389	80	3	
435	432	428	431	431	443	440	437	439	437	21 32	449	18 45	425	24	4	
424	437	440	440	442	434	440	442	437	437	22 22	454	15 15	411	43	5	
430	435	432	444	441	440	449	441	438	437	22 10	452	14 34	418	34	6	
420	422	427	432	440	445	440	433	435	436	5 24	450	16 16	415	35	7	
421	424	429	422	423	422	440	433	439	432	7 22	449	13 39	414	35	8	
431	431	436	437	439	438	446	443	437	437	23 07	447	16 22	430	17	9	
428	430	428	436	438	436	435	436	438	440	9 52	456	16 27	424	32	10	
438	435	433	440	440	443	441	439	439	441	9 40	451	18 00	433	18	11	
443	443	446	446	445	446	447	447	447	446	13 00	461	7 43	432	29	12	
448	446	446	443	440	441	443	444	447	448	12 24	466	8 15	433	33	13	
445	441	441	428	422	431	433	440	436	443	10 24	456	19 51	420	36	14	
437	436	428	429	436	436	439	440	443	440	1 16	459	18 18	426	33	15	
430	430	432	432	432	437	441	442	443	442	9 04	456	16 26	429	27	16	
441	436	436	437	444	438	436	440	443	443	13 12	456	22 00	436	20	17	
460	446	447	447	446	446	445	445	446	451	11 00	465	0 00	443	22	18	
448	445	448	450	449	447	448	451	451	452	9 48	462	17 00	445	17	19	
455	453	453	448	441	438	431	434	441	454	14 00	467	22 43	428	39	20	
373	357	366	356	404	368	381	381	402	414	8 15	471	17 18	355	116	21	
427	426	430	426	424	423	423	421	424	424	11 51	434	0 00	402	32	22	
427	429	429	433	434	435	431	432	432	430	4 13	440	13 00	419	21	23	
435	434	437	439	440	438	442	440	439	438	8 39	442	0 32	430	12	24	
-25	022	096	129	152	182	205	214	190	190	7 20	548	8 30	†-248	796	25	
300	297	304	309	310	321	324	329	320	287	22 48	330	0 05	221	109	26	
334	340	342	344	346	349	350	353	354	334	23 18	355	0 29	319	36	27	
364	365	361	358	364	361	367	369	368	355	22 18	375	11 10	328	47	28	
357	362	368	372	373	371	382	380	393	372	24 00	393	15 40	355	38	29	
315	324	329	317	322	331	335	320	347	351	3 15	400	14 29	290	110	30	
401	402	406	406	409	410	413	415	417	414					65		
443	440	440	442	442	441	441	442	443	446					25		

OCTOBER, 1909.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

359	359	359	359	361	366	359	360	361	358	11 00	372	1 00	338	34	1
364	360	361	359	364	367	369	369	369	372	11 08	391	18 29	354	37	2
375	372	368	373	373	374	372	372	372	380	9 00	399	18 45	368	31	3
379	380	380	375	377	377	377	381	380	385	10 36	407	1 00	372	35	4
387	389	388	386	382	383	385	385	385	388	12 51	401	0 14	379	22	5
380	380	386	387	387	388	388	387	386	384	7 00	391	13 12	376	15	6
368	369	372	373	373	368	368	361	358	377	6 41	396	24 00	358	38	7
369	374	374	367	355	346	351	358	367	371	10 00	387	21 31	343	44	8
378	382	382	383	382	382	382	382	383	382	8 23	389	0 00	367	22	9
393	385	387	391	391	392	391	390	390	396	12 00	419	0 00	383	36	10
384	379	383	383	386	387	384	384	385	393	10 09	412	17 00	379	33	11
403	403	402	402	401	401	400	399	400	400	9 57	419	1 00	385	34	12
394	396	397	398	397	393	393	401	403	398	24 00	403	21 30	393	10	13
418	415	412	411	411	411	411	409	409	414	11 38	422	0 00	403	19	14
411	410	408	403	403	403	406	403	403	410	13 42	427	19 43	402	25	15
398	399	401	401	401	401	400	400	405	403	8 00	409	16 00	398	11	16
390	390	397	401	402	401	401	401	400	406	9 28	417	16 30	389	28	17
349	311	305	280	285	275	294	310	304	370	10 30	424	21 18	269	155	18
335	344	336	356	356	366	366	364	383	356	8 33	395	0 39	298	97	19
377	375	378	378	379	377	379	380	383	382	8 00	393	21 30	374	1	20
383	381	383	381	382	390	387	388	394	387	7 21	396	13 06	377	19	21
385	391	394	394	403	389	379	363	347	391	9 00	406	24 00	347	59	22
330	344	353	364	365	366	369	366	363	359	6 46	406	14 19	302	104	23
358	---	---	---	---	---	---	---	384	---	---	---	---	---	---	24
381	388	387	390	393	392	390	389	392	389	8 21	402	15 15	379	23	26
382	384	388	388	392	392	395	398	395	395	8 29	411	15 41	382	29	27
396	391	390	390	394	395	393	397	397	405	10 16	434	18 21	389	45	28
378	390	392	390	389	395	398	399	399	396	9 00	405	16 00	378	27	29
404	399	395	397	394	392	392	394	400	404	8 00	415	21 22	392	23	30
400	402	405	402	403	402	408	404	404	401	22 00	408	14 28	394	14	31
381	381	381	381	382	382	382	382	383	388					38	
396	394	395	395	396	396	396	395	397	401					27	

† Estimated.

NOVEMBER, 1909.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	403	407	406	412	408	408	407	406	407	404	402	404	396	398	405
2	407	407	408	409	410	410	409	407	407	409	407	407	401	402	404
3*	406	409	409	410	410	411	417	419	426	427	425	422	417	413	410
4*	403	406	407	408	413	415	422	427	426	426	425	416	407	402	402
5*	413	413	413	415	416	417	417	416	417	419	420	417	408	406	405
6	414	415	418	422	426	432	437	441	447	446	435	425	415	410	410
7	396	399	400	404	403	410	415	416	416	413	415	418	416	411	410
8	404	407	410	408	412	414	417	418	420	416	413	416	412	407	405
9*	406	407	408	408	411	416	416	419	421	419	419	417	414	411	410
10*	402	403	403	405	405	407	412	418	425	426	406	412	406	406	406
11*	397	397	400	403	403	406	416	423	431	436	436	431	422	417	414
12*	406	403	401	405	407	407	414	419	420	420	419	414	407	402	395
13*	406	405	405	408	412	415	416	418	418	417	410	405	400	395	390
14	414	411	411	406	411	420	426	436	441	437	425	419	416	412	416
15	394	394	394	397	406	413	419	424	425	422	427	398	392	386	374
16	404	408	412	413	412	407	412	413	409	407	396	390	383	380	371
17	394	398	399	400	399	401	406	406	400	394	389	387	390	392	390
18	400	406	402	404	404	407	411	415	414	408	404	400	397	397	398
19	405	408	407	413	412	413	414	406	400	402	392	390	386	387	386
20	409	406	406	406	411	421	426	417	408	406	380	379	381	372	389
21	381	386	385	388	388	389	396	394	398	398	401	398	402	396	394
22	393	388	398	395	395	400	400	404	410	409	405	389	380	386	381
23	385	386	387	390	393	398	404	406	409	411	411	402	389	387	387
24*	389	389	389	393	396	399	404	398	397	398	397	401	395	387	385
25*	398	401	401	401	400	402	407	408	410	410	413	406	400	395	389
26	400	398	398	399	400	404	410	414	418	428	431	428	418	412	402
27	429	427	406	409	406	401	421	423	423	423	421	413	408	388	383
28	388	388	391	395	398	398	410	418	420	416	409	405	402	399	399
29	404	405	405	408	409	408	414	414	413	418	400	392	394	387	387
30	374	372	374	380	388	370	365	375	348	344	342	331	324	331	336
Mean.....	401	402	402	404	405	407	412	414	414	413	410	405	399	396	394
Mean*....	403	403	404	406	407	409	414	416	419	420	417	414	408	403	401

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28500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	353	358	349	352	369	369	368	384	380	372	359	359	353	349	346
2	351	356	357	374	380	373	384	384	381	377	371	368	365	364	365
3	377	376	378	385	382	385	(387)	(389)	391	392	401	400	396	388	390
4	381	382	380	387	387	391	393	392	385	373	361	362	368	368	367
5	384	385	385	386	389	392	395	392	386	386	389	386	380	378	380
6	388	387	387	397	402	404	408	407	400	402	403	399	390	387	387
7	398	397	399	400	402	405	408	407	404	406	409	404	398	395	394
8*	400	400	402	403	406	410	419	424	421	417	411	404	397	392	391
9*	402	403	403	401	396	399	407	407	407	397	391	388	383	384	384
10*	399	400	402	403	405	405	410	411	411	414	408	405	403	398	393
11*	399	400	402	403	405	405	410	411	411	414	408	405	403	398	393
12*	402	402	403	404	405	405	412	411	410	410	409	406	401	401	396
13	399	403	403	402	408	414	420	419	409	390	379	345	343	354	376
14	384	381	385	377	375	382	387	393	379	370	359	338	329	329	315
15	355	369	371	371	373	376	387	393	395	395	390	390	381	376	378
16	396	401	403	407	401	400	399	413	406	393	385	381	373	378	379
17	387	393	393	393	394	393	400	403	394	387	388	394	397	394	389
18	392	393	395	396	400	402	408	410	408	405	399	395	384	378	373
19	387	390	393	396	398	400	407	410	410	403	398	393	383	382	388
20	393	391	392	399	399	400	408	408	410	411	408	396	385	398	403
21	399	398	396	401	401	404	410	411	410	399	373	362	349	352	363
22	370	372	378	377	383	381	390	395	394	395	393	387	383	387	387
23	390	390	389	386	391	391	397	402	403	399	391	392	384	377	374
24*	391	392	392	392	393	395	398	399	398	395	391	389	379	380	391
25*	398	391	391	393	401	406	412	420	420	413	409	407	402	394	396
26*	403	407	407	403	407	406	409	410	406	405	402	399	383	388	388
27*	396	397	398	398	398	398	406	408	401	394	382	386	383	379	379
28*	394	395	397	399	399	402	406	409	404	397	394	396	392	391	393
29	397	399	398	399	402	402	409	411	404	403	401	401	402	400	403
30	397	396	397	398	401	400	406	408	403	405	409	401	390	393	393
31	403	402	405	408	409	413	420	432	434	438	426	423	401	398	385
Mean.....	389	390	391	393	395	397	402	405	402	398	393	389	383	381	381
Mean*....	398	398	399	400	401	403	409	411	408	405	401	398	393	390	390

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

55

NOVEMBER, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum		Minimum		Range	Day	
405	407	408	408	408	405	406	406	407	406	3	45	412	13 18	394	18	1
405	407	409	408	407	407	406	403	405	407	6	00	410	13 00	401	9	2
408	406	407	408	407	408	407	406	404	412	10	00	427	24 00	404	23	3
405	408	408	413	414	412	411	412	413	413	8	00	427	15 00	402	25	4
406	410	414	415	414	412	412	411	412	413	11	00	420	15 00	405	15	5
404	404	407	407	406	405	399	389	391	417	9	41	450	23 00	389	61	6
410	408	410	397	405	401	406	406	407	408	11	34	418	0 00	391	27	7
402	405	404	402	404	404	405	407	407	409	9	00	420	16 00	402	18	8
406	406	408	406	402	396	402	403	402	409	9	00	421	21 00	396	25	9
406	410	412	412	414	407	403	398	398	408	9	41	426	24 00	398	28	10
403	392	384	393	401	403	404	403	404	409	10	00	436	18 02	384	52	11
395	400	402	408	405	403	405	405	405	407	10	00	420	15 00	395	25	12
398	407	408	408	406	407	408	409	407	407	9	08	420	14 54	389	31	13
417	410	392	396	392	400	402	397	391	412	8	58	441	18 19	391	50	14
383	389	395	395	400	397	395	405	401	401	11	00	427	14 54	372	55	15
375	383	382	384	390	395	396	395	396	396	7	58	414	15 17	367	47	16
391	399	403	401	399	398	404	398	398	397	8	00	406	11 46	387	19	17
401	402	403	402	402	399	400	403	404	403	8	21	416	12 39	393	23	18
389	395	397	396	397	397	395	399	411	400	6	55	415	15 00	386	29	19
364	357	367	373	367	370	373	375	378	389	6	55	427	17 00	357	70	20
392	393	396	402	396	394	399	400	400	394	12	52	403	0 00	378	25	21
374	380	388	391	391	390	385	381	388	392	9	31	411	15 22	371	40	22
407	394	395	387	385	386	388	386	392	394	9	37	413	19 28	383	30	23
384	387	391	393	394	396	396	399	398	394	7	00	404	16 17	383	21	24
382	386	392	395	395	395	396	396	405	399	10	48	413	16 00	382	31	25
395	397	399	409	408	407	401	410	424	409	11	29	432	16 43	393	39	26
382	385	388	389	391	390	391	388	388	403	1	39	430	15 11	379	51	27
401	401	402	403	403	400	401	403	403	402	8	27	422	1 00	388	34	28
391	398	407	410	412	410	397	397	383	404	10	55	419	24 00	383	36	29
337	341	344	330	338	331	337	344	345	350	5	36	399	13 33	322	77	30
394	396	397	398	398	398	398	398	399	402						34	
399	401	403	405	405	404	404	404	405	407						28	

DECEMBER, 1909.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

343	339	318	288	300	314	358	341	349	349	7	55	385	18 50	286	99	1
366	371	369	371	368	369	372	373	373	370	8	08	386	0 06	348	38	2
383	381	384	385	384	382	381	380	382	386	12	30	403	0 24	372	31	3
365	372	377	379	381	382	382	381	381	378	6	36	394	11 15	360	34	4
383	387	389	391	392	391	388	387	386	387	7	00	395	14 08	377	18	5
387	401	401	400	398	397	398	398	398	400	7	44	409	13 48	386	23	6
396	400	402	400	400	396	395	394	395	400	10	27	409	23 13	392	17	8
393	397	401	397	398	398	398	399	401	403	8	00	424	15 00	391	33	9
390	398	397	398	397	398	398	398	398	397	8	00	407	14 33	381	26	10
397	398	397	399	399	395	401	398	399	402	10	06	414	15 00	393	21	11
402	399	399	395	393	387	389	394	397	401	7	16	413	21 13	386	27	12
414	379	380	376	371	362	370	383	377	386	7	29	422	13 09	341	81	13
315	311	312	322	332	332	335	343	350	351	8	00	393	17 28	298	95	14
380	379	378	369	375	373	373	373	393	379	9	28	396	0 00	350	46	15
370	374	375	371	375	377	374	381	387	388	8	16	414	15 49	369	45	16
379	379	386	388	385	391	394	391	391	391	7	54	404	16 30	376	28	17
372	381	376	386	386	386	387	379	381	390	7	26	410	15 18	368	42	18
393	396	393	392	393	389	393	390	391	394	8	19	412	13 38	380	32	19
407	389	396	400	401	398	397	400	398	399	10	00	411	13 44	378	33	20
373	370	357	355	352	353	364	365	370	379	7	42	413	20 39	337	76	21
388	388	384	385	388	386	386	385	386	386	9	23	397	0 46	369	28	22
387	387	387	389	390	390	388	389	389	390	8	32	404	14 38	369	35	23
393	391	394	396	396	394	392	397	393	393	8	00	399	13 19	377	22	24
399	402	402	402	403	404	404	402	397	403	8	36	421	2 00	391	30	25
387	388	386	384	384	387	390	392	393	397	7	18	411	18 44	384	27	26
377	381	383	385	388	386	394	394	393	391	7	52	408	16 00	377	31	27
391	388	390	389	389	391	392	392	393	395	8	04	410	19 28	388	22	28
402	408	408	401	396	393	393	393	396	401	7	15	411	22 15	392	19	29
395	385	382	385	392	393	394	397	400	397	12	13	410	18 00	382	28	30
382	385	387	376	370	384	378	372	371	400	10	26	440	20 00	370	70	31
384	383	382	381	382	382	385	385	387	389						39	
392	394	395	394	395	394	396	396	396	398						26	

JANUARY, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	378	384	388	389	389	392	397	400	398	392	391	388	375	378	379
2*	396	398	398	400	401	403	407	411	405	399	394	398	396	391	394
3	400	400	400	403	405	405	410	413	415	417	420	415	413	408	405
4	406	407	410	407	410	414	420	414	402	396	400	404	400	397	397
5	402	403	402	402	405	406	412	410	409	404	401	406	398	397	390
6*	401	401	401	403	406	406	409	414	413	409	407	401	388	385	381
7*	394	394	393	399	400	401	406	406	402	398	401	402	398	397	398
8*	401	400	401	401	402	405	409	412	407	407	413	414	402	401	404
9	405	405	407	407	407	408	414	417	415	413	418	415	422	412	414
10*	406	402	406	404	407	406	415	419	415	412	424	419	415	416	410
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	412	413	416	417	416	418	426	424	417	414	420	420	413	410	411
13	399	402	404	401	401	404	410	417	414	412	416	403	389	393	400
14	415	411	409	414	410	411	416	421	416	404	400	390	382	392	392
15*	406	407	406	408	409	411	414	413	410	405	402	402	399	402	406
16*	407	411	411	412	413	411	414	417	412	406	402	394	389	390	395
17	415	414	416	419	422	426	430	407	421	418	430	430	408	371	368
18	389	387	387	393	396	398	403	407	404	400	397	388	379	369	373
19	387	393	394	390	393	396	398	398	395	393	384	383	377	380	385
20*	397	396	398	404	407	410	412	413	414	410	408	412	411	405	402
21	403	404	406	408	408	408	411	413	412	406	411	404	397	400	407
22	390	393	396	399	401	402	407	408	399	401	404	400	403	410	405
23	384	388	393	393	392	394	400	399	395	390	395	395	388	383	387
24	346	343	350	362	368	368	378	383	392	388	391	379	383	373	361
25	380	390	374	373	367	393	384	390	369	360	357	358	345	331	337
26	372	367	372	375	373	385	390	396	381	376	379	383	378	380	372
27	374	377	378	377	382	384	384	389	383	382	384	379	368	368	373
28*	383	384	384	384	388	392	398	403	404	398	389	378	372	376	374
29	388	390	391	391	392	393	398	404	405	397	397	393	385	387	393
30*	394	396	398	398	401	402	407	407	403	396	400	402	400	401	401
31	397	397	399	398	398	399	404	409	407	401	403	405	404	399	401
Mean....	394	395	396	398	399	402	406	408	404	400	401	399	393	390	390
Mean*...	398	399	400	401	403	405	409	412	408	404	404	402	397	396	396

FEBRUARY, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

1*	392	392	396	398	400	399	404	409	407	399	400	398	395	396	401
2	397	399	398	401	402	407	416	419	415	401	401	405	411	406	393
3	388	393	395	393	396	390	398	408	408	410	410	391	388	389	394
4	391	390	390	392	400	402	409	414	410	409	406	399	389	382	387
5	388	386	386	387	390	393	395	396	390	384	380	375	371	376	380
6*	391	392	393	395	398	401	406	409	406	402	400	396	395	399	399
7*	394	396	396	399	402	406	408	408	399	396	396	396	401	406	400
8*	393	393	395	398	399	401	407	410	410	407	408	416	414	411	409
9*	399	399	401	403	403	405	415	419	412	407	417	427	428	418	405
10*	396	399	404	404	404	403	407	409	406	404	405	404	404	401	397
11*	399	399	398	400	401	401	401	401	393	386	384	385	388	394	394
12*	402	404	403	406	403	402	402	398	393	390	390	403	404	404	405
13*	399	398	400	400	404	404	404	404	404	403	399	393	393	396	395
14	396	397	403	404	411	429	419	421	419	410	399	396	397	397	408
15	409	411	416	410	409	411	413	425	423	425	422	421	428	414	414
16	394	399	400	403	399	401	405	416	418	413	415	411	407	405	406
17	400	400	403	400	405	406	413	422	426	422	413	406	398	373	388
18	383	385	385	387	390	395	407	418	416	413	404	396	390	384	385
19*	391	391	394	394	396	397	403	408	405	402	401	405	394	386	383
20	396	393	392	395	398	414	436	451	455	435	404	410	400	389	372
21	383	381	384	399	405	394	404	411	416	411	410	402	388	391	393
22	386	387	388	388	388	389	391	398	402	408	406	403	402	382	373
23	374	375	377	378	381	384	390	395	400	400	401	401	397	394	394
24	395	397	398	397	398	410	407	403	412	410	405	391	386	381	381
25	386	386	383	388	388	381	394	402	402	402	383	371	366	351	353
26	373	370	370	380	382	378	388	394	396	396	394	388	382	382	380
27	381	384	384	382	381	383	386	382	397	395	394	392	389	387	381
28	378	379	381	385	388	387	396	402	400	400	392	390	388	389	387
Mean....	391	392	393	395	397	399	404	409	409	405	401	399	396	392	391
Mean*...	396	396	398	400	401	402	406	408	404	400	400	402	402	401	399

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

57

JANUARY, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
388	391	388	391	395	393	392	391	394	389	8 00	400	13 00	375	1
396	399	396	400	398	394	396	397	398	399	8 00	411	14 00	391	2
403	405	409	409	411	411	410	407	398	408	11 10	420	0 06	397	3
396	397	400	400	401	401	401	401	401	403	7 00	420	16 22	394	4
390	386	390	392	402	401	401	399	398	400	7 50	414	17 23	385	5
381	382	385	387	388	388	385	380	389	396	8 00	414	14 45	380	6
397	399	400	403	403	403	403	402	400	400	8 00	406	0 00	389	7
400	401	403	405	405	405	404	406	405	405	11 33	416	16 00	400	8
405	402	407	408	410	410	408	408	404	410	12 56	423	16 21	402	9
411	407	402	402	403	405	406	405	407	409	11 00	424	2 00	402	10
420	417	414	413	411	412	410	410	410	408	7 09	427	19 00	384	11
404	396	386	384	391	392	398	401	400	408	7 46	418	13 21	387	12
400	400	402	402	404	404	404	403	405	404	8 00	421	13 15	381	13
394	399	397	399	401	403	402	403	404	404	7 00	414	13 21	399	14
406	406	406	406	405	404	403	405	405	406	7 00	414	13 21	399	15
397	403	406	407	407	406	406	407	409	406	8 02	417	13 00	389	16
380	383	386	385	386	384	378	382	387	402	6 54	436	14 44	361	17
381	390	392	388	377	395	385	388	386	390	8 00	407	14 00	369	18
390	393	397	397	397	397	397	397	399	392	7 23	400	13 00	377	19
401	404	405	404	404	404	402	403	403	405	8 33	416	0 14	396	20
395	398	404	399	390	384	363	372	382	399	7 52	413	21 41	362	21
393	374	358	344	354	369	375	378	381	389	13 27	415	18 45	338	22
384	382	376	361	347	334	322	345	351	378	7 44	416	22 00	322	23
326	347	359	364	368	372	377	376	379	368	9 11	395	16 00	326	24
350	358	360	349	353	351	359	358	371	363	7 41	395	13 11	327	25
362	356	356	362	372	372	366	371	371	374	8 00	396	16 34	345	26
376	376	383	388	388	386	383	375	384	380	7 48	390	13 16	365	27
378	377	377	383	381	380	381	383	385	385	8 30	405	12 45	370	28
390	389	386	388	393	391	391	392	392	392	8 30	406	19 05	381	29
401	399	395	392	391	390	390	393	394	398	7 34	409	21 32	389	30
398	395	395	397	398	395	392	386	385	398	8 00	409	24 00	385	31
389	390	390	390	391	391	389	391	392	395				36	
397	398	398	399	398	398	398	399	400	401				23	

FEBRUARY, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

398	394	393	392	395	395	395	391	391	397	8 00	409	23 00	391	18
383	391	394	392	388	388	388	385	387	399	8 00	419	16 00	383	20
392	380	381	381	390	388	391	391	389	393	10 47	411	18 27	378	22
388	373	340	368	377	376	388	388	387	390	8 00	414	18 00	340	24
384	386	384	386	388	388	388	388	388	386	8 00	396	13 00	371	25
390	388	392	392	391	389	389	389	392	396	8 00	409	17 00	388	21
391	385	391	392	393	394	394	394	390	397	7 20	410	16 47	384	22
398	393	388	388	387	388	393	395	398	400	12 00	416	20 45	386	28
396	399	402	396	390	390	391	396	395	405	12 35	434	20 45	389	9
390	390	391	393	394	394	396	395	398	400	8 00	409	16 11	387	22
393	395	397	399	400	397	400	399	399	396	7 22	404	11 12	384	20
402	402	400	402	400	401	402	395	401	401	4 00	406	10 06	390	12
400	402	401	399	398	399	399	401	399	399	7 23	405	12 00	390	13
420	408	413	407	406	399	402	402	403	407	6 05	431	13 07	391	14
418	414	406	396	396	400	394	388	394	411	13 04	430	23 05	388	15
406	401	398	401	402	393	397	397	397	403	8 41	418	21 06	392	16
395	394	385	351	355	355	376	352	378	394	9 00	426	19 00	351	17
385	384	382	385	388	391	393	393	387	393	8 21	419	0 00	378	18
381	383	386	389	392	393	396	395	394	394	8 08	408	16 12	378	19
372	373	378	373	382	383	388	384	381	398	8 47	456	15 18	364	20
392	390	381	381	389	386	386	387	390	389	9 00	416	19 02	378	21
365	365	362	363	364	365	372	377	373	383	10 24	411	17 36	359	22
388	387	395	394	394	391	394	394	394	391	12 41	404	0 00	373	23
380	386	386	385	383	385	385	384	382	393	9 22	412	15 09	377	24
353	351	356	365	368	371	371	372	376	376	9 42	405	14 10	346	25
385	375	371	369	371	374	378	377	380	381	10 31	398	2 33	366	26
390	381	367	368	361	360	369	374	380	381	8 44	398	20 42	358	27
378	372	361	372	367	367	368	365	364	382	7 43	402	18 00	361	28
390	387	385	385	394	394	386	386	389	394				38	
394	393	394	394	394	394	396	396	395	398				24	

MARCH, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	373	376	377	382	384	384	393	397	400	395	394	395	396	386	385
2	384	385	385	386	386	394	404	417	419	418	414	408	405	406	402
3	386	382	383	384	388	392	395	404	406	408	411	408	398	391	385
4	372	379	384	387	388	389	399	408	408	417	423	417	407	397	385
5	378	374	377	380	385	388	394	394	399	402	397	400	386	378	382
6	377	381	381	383	383	384	390	394	395	396	396	384	383	374	368
7	366	373	378	378	379	384	388	393	395	400	398	392	401	397	387
8*	375	376	377	376	381	379	384	395	401	403	402	399	393	392	387
9*	378	381	380	382	383	388	396	398	399	395	397	398	397	395	393
10*	388	385	387	388	389	390	397	397	398	401	407	409	410	409	410
11*	385	388	392	391	393	(396)	(399)	402	403	402	402	402	401	395	390
12*	390	389	388	388	391	391	397	403	401	399	400	402	397	398	398
13	388	390	390	394	394	397	409	414	423	425	434	412	411	403	399
14	392	383	380	388	391	390	395	399	410	415	415	421	412	403	405
15	392	399	394	393	399	397	402	414	414	414	417	421	419	397	397
16	383	381	388	388	388	389	398	397	401	406	406	406	390	382	386
17	382	384	388	391	393	393	392	394	391	390	401	404	401	394	397
18*	392	393	402	388	387	388	396	408	405	405	409	408	405	400	397
19	394	394	396	396	399	397	400	402	402	405	410	409	407	403	395
20	366	368	374	379	386	389	396	410	410	393	390	378	376	362	346
21	351	363	365	367	380	381	390	395	397	393	395	395	394	387	374
22*	384	380	379	401	382	382	385	392	390	395	403	401	398	398	393
23*	384	386	389	389	389	389	393	393	393	394	395	393	390	392	389
24*	387	387	387	389	389	388	392	397	396	396	398	401	409	405	400
25*	390	391	391	393	393	395	395	395	394	397	404	405	406	408	407
26	394	396	396	394	397	398	398	404	411	420	426	426	420	417	412
27	369	361	372	392	391	384	391	399	402	401	405	402	401	378	362
28	300	301	275	279	310	303	314	307	325	305	325	352	344	329	331
29	339	334	342	342	356	363	367	367	358	343	330	328	339	345	345
30	357	361	362	365	366	366	370	372	370	372	373	367	357	369	364
31	326	343	342	339	346	355	359	363	367	357	318	340	357	358	343
Mean.....	375	376	377	380	383	384	390	394	396	396	397	396	394	389	384
Mean*....	385	386	387	388	388	389	393	398	398	399	402	402	401	399	396

APRIL, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	348	371	359	357	361	363	351	345	362	364	359	354	332	322	339
2	367	367	368	358	364	358	364	366	352	351	355	355	341	353	351
3	359	362	362	366	369	371	371	367	365	377	377	377	377	381	380
4	373	368	367	372	385	379	368	368	371	359	365	352	359	369	368
5*	368	367	367	370	371	371	372	369	374	385	391	393	388	386	379
6	366	367	369	373	371	373	372	375	378	382	383	380	378	383	380
7*	379	378	378	381	380	374	379	380	383	387	387	386	389	386	379
8*	373	373	372	379	379	378	377	377	380	387	391	387	387	386	385
9*	380	378	378	382	378	378	372	368	379	389	387	384	382	382	382
10*	380	380	381	382	381	381	377	380	386	396	402	405	403	398	394
11*	390	390	392	392	391	390	389	390	395	406	414	416	414	408	404
12	375	372	375	386	386	392	399	405	404	405	402	399	391	386	385
13	375	378	378	376	381	381	381	381	384	382	384	382	385	386	387
14*	381	386	384	385	383	386	387	387	389	394	397	397	393	387	388
15*	383	383	385	387	388	388	389	391	399	406	412	409	401	399	394
16	378	377	381	385	387	389	387	387	392	396	392	392	389	384	375
17	375	389	386	378	381	383	385	390	397	404	409	412	411	402	397
18	343	340	346	320	327	325	326	332	340	330	347	333	347	348	336
19	357	351	354	355	357	358	360	363	371	374	371	372	373	371	366
20*	370	367	366	367	370	367	365	367	373	381	380	376	377	375	372
21	370	370	374	374	374	370	370	371	375	380	381	383	386	385	380
22	381	386	386	388	389	394	386	383	387	390	388	393	392	383	387
23	366	362	363	376	377	377	367	374	371	364	375	368	365	375	375
24	374	370	370	382	374	358	386	390	394	400	394	389	388	384	379
25*	372	372	374	375	376	375	376	376	378	381	378	378	377	376	376
26	378	380	379	382	380	375	375	378	382	384	386	386	382	384	377
27	407	356	332	335	338	349	348	345	347	334	328	313	326	342	323
28	359	359	338	341	375	377	359	373	376	362	359	346	353	365	361
29	361	362	363	363	366	371	376	374	377	375	360	345	334	347	354
30	369	367	362	363	365	375	364	361	372	368	365	367	372	372	366
Mean.....	372	371	370	371	373	374	373	374	377	379	381	378	377	376	374
Mean*....	378	377	378	380	380	379	378	378	382	390	394	393	391	388	385

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

MARCH, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum		Minimum		Range	Day
377	375	373	373	372	366	372	374	376	382	9 00	400	0 00	364	36	1
383	382	379	379	382	377	377	390	393	393	9 00	419	22 33	373	46	2
378	381	378	380	382	376	375	373	373	388	11 00	411	22 36	369	42	3
342	346	365	370	367	368	370	381	376	385	10 53	423	16 36	338	85	4
380	370	374	374	374	372	372	371	370	382	10 22	406	21 29	366	40	5
361	358	355	344	337	337	346	379	367	373	10 26	396	19 49	335	61	6
380	382	381	377	373	370	369	382	376	383	12 11	403	1 42	362	41	7
376	373	371	368	368	373	372	375	375	382	9 43	403	20 16	368	35	8
391	391	388	377	379	379	383	384	384	388	12 36	399	0 13	372	27	9
391	388	380	379	387	388	386	385	387	393	14 39	413	18 48	378	35	10
384	390	386	379	379	380	386	388	391	392	8 50	404	19 37	376	28	11
392	389	387	385	382	379	382	385	385	392	8 00	403	21 00	379	24	12
404	404	399	397	391	362	363	375	379	398	10 58	435	21 16	356	79	13
398	392	388	388	383	387	390	392	387	396	12 00	421	0 29	373	43	14
401	400	396	388	388	389	388	388	385	400	12 02	421	0 42	385	36	15
381	378	381	377	382	373	386	382	379	388	11 24	406	21 00	373	33	16
386	358	383	387	388	385	389	387	390	390	11 52	404	16 51	356	48	17
395	396	394	393	393	393	392	392	392	397	11 29	411	5 36	385	26	18
406	388	385	375	377	379	375	369	366	393	10 54	410	23 36	363	47	19
332	325	325	321	329	338	344	343	355	364	8 29	415	18 45	318	97	20
374	367	370	373	374	379	381	380	380	379	9 17	398	1 00	351	47	21
387	380	385	375	377	378	380	383	387	387	11 30	403	18 34	374	29	22
386	383	382	384	384	385	385	386	386	388	11 17	396	17 30	381	15	23
394	390	387	388	388	388	388	389	388	393	13 00	409	0 00	386	23	24
401	393	390	391	391	392	392	393	393	396	14 00	408	18 00	390	18	25
405	401	399	400	395	385	372	362	372	400	11 32	427	22 42	361	66	26
346	335	319	330	300	282	296	279	251	356	11 00	405	23 54	235	170	27
302	305	331	336	336	317	316	328	359	318	24 00	359	0 00	251	108	28
342	342	348	351	356	355	352	355	356	348	6 18	373	11 32	326	47	29
351	315	332	346	315	295	293	310	300	348	11 00	373	21 41	287	86	30
339	326	336	332	343	336	386	349	350	346	21 45	389	11 06	312	77	31
376	371	372	372	370	367	370	371	371	381					52	
390	387	385	382	383	383	384	386	386	391					26	

APRIL, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

342	349	349	356	345	351	366	352	352	352	21 30	385	14 00	322	63	1
355	353	354	353	360	360	361	368	363	358	3 13	376	12 53	338	38	2
376	374	375	374	373	371	373	369	363	371	22 19	382	1 00	359	23	3
362	362	363	371	366	364	368	368	368	367	5 00	385	12 19	343	42	4
375	367	366	368	372	373	372	373	369	374	11 47	393	17 17	364	29	5
374	370	371	374	376	378	378	377	375	375	10 39	385	1 00	366	19	6
374	372	373	374	376	377	376	376	376	379	13 00	389	17 00	372	17	7
382	379	382	382	381	376	383	380	375	380	11 00	391	0 29	371	20	8
378	373	375	377	377	377	378	379	378	378	11 00	389	8 37	368	21	9
390	384	383	383	384	384	386	388	388	387	12 07	406	7 10	377	29	10
400	394	391	385	384	373	378	376	383	394	11 39	417	20 41	371	46	11
385	383	375	361	366	372	371	372	373	384	7 54	406	19 19	358	48	12
385	379	375	378	376	379	380	381	379	381	15 00	387	18 21	372	15	13
384	382	379	378	379	379	380	380	382	385	11 00	397	18 33	376	21	14
393	389	390	387	387	384	383	379	377	391	11 00	412	23 51	376	36	15
370	370	369	370	374	373	370	360	381	380	10 00	396	23 00	360	36	16
393	391	392	393	395	389	378	384	367	391	12 24	412	24 00	367	45	17
332	332	343	345	348	347	356	350	350	340	0 00	367	4 06	320	47	18
364	360	362	360	361	364	361	363	366	363	10 00	374	0 27	346	28	19
370	368	369	368	367	369	369	368	369	370	10 00	381	7 00	365	26	20
375	372	374	374	374	376	379	379	376	376	13 00	386	2 18	369	17	21
383	381	381	372	362	354	357	355	357	380	6 00	394	20 53	353	41	22
377	360	339	339	331	347	358	364	369	364	4 51	380	19 44	328	52	23
374	370	372	367	356	352	347	359	368	375	10 12	402	21 54	346	56	24
374	374	369	360	360	362	371	374	375	373	10 26	381	20 00	360	21	25
371	366	363	363	370	373	371	376	385	377	11 00	386	18 45	362	24	26
312	315	326	335	337	340	339	343	338	338	0 51	413	16 27	304	109	27
351	351	351	352	363	357	359	366	366	359	8 43	377	0 00	338	39	28
354	350	355	359	357	362	372	379	361	362	22 38	384	13 10	332	52	29
361	350	355	352	357	361	357	380	364	364	23 00	380	17 00	350	30	30
371	367	367	367	367	367	369	371	370	372					36	
382	378	378	376	377	375	378	377	377	381					27	

## PORTO RICO MAGNETIC OBSERVATORY.

MAY, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1*	361	365	364	369	366	365	364	372	390	393	393	390	380	374	368
2	367	368	375	372	366	366	363	365	373	379	383	381	375	375	375
3	359	355	361	364	365	364	360	366	377	383	386	381	373	364	362
4*	378	372	368	375	376	373	368	372	381	381	378	377	375	373	372
5*	369	375	370	368	367	371	375	378	385	385	383	383	383	378	370
6*	375	370	372	372	369	372	374	377	382	382	379	372	368	368	374
7*	372	373	369	371	373	373	374	373	381	380	383	376	372	365	361
8*	372	367	370	369	369	372	375	384	389	389	389	387	383	377	375
9	374	377	373	376	378	382	388	400	410	412	402	392	385	388	387
10	375	368	368	370	369	374	379	385	391	390	389	384	384	382	384
11	376	376	375	375	376	378	379	385	395	400	405	405	402	392	373
12	372	371	370	373	374	376	375	377	386	392	402	406	400	395	388
13	375	372	371	372	372	371	371	362	372	379	371	383	379	375	367
14	350	356	363	361	361	361	360	360	358	379	380	375	366	363	365
15	366	358	363	363	366	367	367	367	375	375	377	378	374	367	363
16	374	366	364	367	368	365	361	364	365	365	372	375	375	373	364
17	373	372	376	388	378	377	376	377	381	384	389	384	374	376	370
18	369	363	371	376	379	381	382	377	364	349	345	368	374	360	356
19	346	349	354	353	352	351	349	350	355	359	363	375	364	355	344
20*	361	362	361	360	366	368	362	373	386	387	385	379	370	362	351
21*	369	374	368	365	364	367	362	389	398	400	393	387	374	368	366
22	368	374	368	365	368	363	364	392	400	402	400	394	387	382	376
23*	380	379	380	380	379	380	382	392	399	403	400	400	395	396	390
24	378	375	384	383	379	376	355	374	384	397	397	388	375	364	356
25	356	350	368	363	355	355	354	348	351	354	356	357	346	334	342
26	362	385	366	361	358	366	361	359	357	355	355	358	359	360	344
27*	366	366	361	358	360	360	356	357	361	369	372	376	377	376	368
28	368	362	359	356	356	349	352	348	347	346	341	341	342	341	355
29	364	354	357	359	359	361	365	360	357	356	349	351	352	350	352
30	360	360	361	364	364	365	362	369	379	385	388	380	377	372	367
31	344	347	353	363	358	351	344	344	346	350	354	356	358	345	347
Mean.....	367	366	367	368	367	368	367	371	377	379	379	379	374	369	366
Mean*....	370	370	368	369	369	370	369	377	385	387	386	383	378	374	370

JUNE, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	364	358	362	365	365	364	361	363	366	369	373	374	372	363	356
2	365	365	367	366	366	366	367	370	371	372	378	376	369	368	363
3*	371	370	370	368	369	374	375	379	381	378	376	374	368	358	354
4*	366	367	366	369	370	375	374	384	388	384	388	390	385	379	371
5*	364	363	364	363	364	362	358	361	368	377	382	380	373	368	363
6	371	371	369	374	373	372	369	364	367	367	370	367	361	372	372
7*	374	381	375	377	376	380	377	373	368	371	384	386	387	390	393
8	386	388	385	393	400	392	386	386	389	397	416	423	425	412	398
9	378	373	371	380	374	373	383	392	395	401	414	407	395	389	378
10	364	364	368	366	371	369	369	364	370	373	375	382	382	377	367
11	365	364	365	367	366	371	371	369	374	386	389	388	383	369	368
12	368	370	379	366	366	365	368	371	377	383	379	375	369	366	372
13	369	367	369	368	369	368	367	371	378	385	378	372	367	367	366
14*	365	366	365	366	367	366	363	367	363	387	395	396	389	382	363
15*	368	368	368	371	370	371	373	375	377	381	390	392	379	373	362
16*	369	370	369	370	373	374	374	377	378	375	374	374	378	378	377
17*	379	379	382	381	380	382	376	371	374	379	380	385	384	379	374
18*	376	377	375	378	376	375	372	370	379	385	388	380	371	373	369
19	372	372	372	370	368	369	367	370	375	370	387	389	388	389	380
20	328	350	344	355	355	362	366	364	359	357	355	361	355	362	338
21	349	342	346	346	338	344	350	362	364	368	371	368	370	361	337
22	350	344	347	346	347	343	350	349	349	353	353	346	350	360	359
23	364	356	355	355	349	349	355	363	367	370	370	366	360	355	355
24	358	358	361	358	358	355	356	358	361	368	373	376	374	371	365
25	357	355	355	362	366	373	366	373	369	379	368	364	355	351	352
26	358	356	362	361	363	356	357	371	377	372	372	367	361	361	361
27	360	363	359	359	361	361	361	359	360	366	369	369	367	361	360
28*	355	357	358	361	365	368	365	368	375	384	384	380	373	373	370
29	362	361	371	366	369	366	370	378	390	394	398	402	393	390	379
30	353	353	355	354	353	354	353	352	356	363	366	366	362	359	353
Mean.....	364	364	365	366	366	367	367	369	372	376	380	379	375	371	366
Mean*....	369	370	369	370	371	373	371	372	375	380	384	384	379	375	370

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

61

MAY, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
369	369	367	366	365	362	361	368	364	371	10 24	394	0 56	360	34 1
374	372	362	352	348	341	346	367	359	367	11 56	384	21 20	335	49 2
363	361	363	362	360	361	366	369	369	366	11 00	386	19 33	355	31 3
370	362	359	363	362	366	371	368	371	371	9 16	382	19 36	357	25 4
362	368	373	371	367	364	372	374	372	374	9 27	387	16 15	360	27 5
369	363	364	370	366	371	378	372	371	372	9 16	384	17 23	363	21 6
356	356	363	365	366	369	371	371	373	370	10 46	383	16 19	352	31 7
376	375	376	376	379	380	375	373	376	377	9 17	389	2 00	367	22 8
368	350	345	355	359	365	368	374	378	378	9 42	413	17 39	345	68 9
385	379	381	379	377	377	383	383	385	380	9 08	392	3 00	368	24 10
360	359	362	359	362	365	366	368	374	378	11 27	406	16 26	356	50 11
379	374	380	382	382	386	391	387	383	383	11 42	406	1 45	369	37 12
360	352	347	337	342	344	351	359	356	364	11 39	385	18 58	336	49 13
365	362	363	358	359	354	351	352	360	362	10 44	380	1 05	350	30 14
364	363	365	360	358	362	364	361	378	367	11 42	380	20 28	354	26 15
356	363	361	360	366	369	367	373	370	367	0 11	380	16 05	356	24 16
369	367	375	375	374	370	374	366	367	376	11 03	390	23 00	366	24 17
326	318	322	327	329	319	319	331	327	351	7 27	383	21 36	313	70 18
336	338	345	353	354	355	366	361	358	354	12 11	377	0 00	327	50 19
343	353	360	363	360	361	364	365	367	365	10 24	388	16 00	343	45 20
364	365	367	369	370	378	370	375	375	374	9 45	401	16 00	364	37 21
377	376	378	380	380	378	379	383	381	381	9 28	403	6 00	363	40 22
384	385	398	387	381	382	384	382	376	387	10 00	403	24 00	376	27 23
340	348	357	342	309	308	364	359	335	364	10 00	397	20 46	306	91 24
340	355	340	346	349	358	372	366	362	353	3 12	375	13 38	329	46 25
347	347	352	356	358	355	362	357	369	359	1 47	387	15 00	344	43 26
364	353	356	358	356	362	352	358	364	363	11 42	378	22 12	351	27 27
334	348	346	348	342	350	368	355	363	351	0 30	370	16 14	332	38 28
356	359	364	364	362	361	362	359	359	358	7 49	365	11 08	348	17 29
361	358	361	363	358	352	367	358	351	366	11 00	388	20 46	350	38 30
354	359	360	361	355	355	361	357	360	353	3 49	363	14 27	341	22 31
360	360	362	362	360	361	366	366	366	368					38
366	365	368	369	367	370	370	371	371	372					30

JUNE, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

361	361	367	365	367	370	366	371	367	367	11 00	378	16 28	355	23 2
358	358	363	365	367	370	366	371	363	369	8 57	381	14 41	353	28 3
359	361	367	371	368	369	366	366	363	369	12 00	390	22 29	359	31 4
361	364	369	371	372	371	369	370	368	368	11 12	383	7 00	358	25 5
368	368	368	370	372	373	374	377	372	370	4 30	378	12 54	360	18 6
388	386	388	386	386	385	385	381	379	382	14 44	393	9 00	368	25 7
390	378	369	366	366	369	367	376	388	388	12 50	428	18 39	366	62 8
368	359	360	344	346	351	358	361	364	376	11 07	415	19 24	343	72 9
357	354	356	356	355	361	361	363	364	366	12 43	385	17 12	350	35 10
367	360	346	362	363	365	365	365	366	369	10 48	390	18 00	346	44 11
369	368	366	367	364	365	367	367	364	370	10 00	383	0 24	362	21 12
360	352	355	362	365	363	364	363	363	367	10 22	390	17 21	348	42 13
371	365	363	365	366	367	367	366	367	371	11 19	398	18 20	363	35 14
360	364	369	371	370	370	370	370	367	372	12 00	392	16 00	360	32 15
375	374	375	380	378	378	376	378	376	375	19 00	380	0 00	367	13 16
369	366	368	375	378	379	377	378	376	376	12 43	386	17 27	364	22 17
365	366	369	371	371	372	372	371	374	374	11 00	385	16 24	363	22 18
373	373	380	387	394	388	386	380	330	376	20 35	401	24 00	330	71 19
264	396	308	326	326	326	342	349	341	341	13 10	371	16 05	260	111 20
339	347	344	348	353	345	340	342	348	351	10 51	371	19 38	320	51 21
350	347	346	342	345	347	364	354	353	350	22 10	368	19 00	342	26 22
352	343	344	348	360	354	359	354	356	357	11 00	370	16 22	340	30 23
356	353	354	353	349	349	353	356	359	360	11 41	378	19 50	348	30 24
347	347	352	357	360	360	359	359	359	360	8 50	385	15 41	346	39 25
359	362	365	361	360	352	360	361	357	362	8 23	380	19 54	351	26 26
358	352	346	349	349	350	354	356	355	358	11 24	369	18 06	346	23 27
362	356	360	360	359	358	361	361	361	366	11 25	385	2 20	354	31 28
356	330	333	340	347	350	350	352	351	367	11 51	403	17 09	329	74 29
348	350	353	358	359	359	360	359	357	356	12 00	366	16 00	348	18 30
359	357	359	361	363	363	364	364	362	367					37
368	366	369	372	372	372	371	370	370	373					26

JULY, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1*	357	357	358	356	356	360	365	365	372	379	375	369	362	357	360
2	361	361	364	365	366	366	364	364	371	376	385	380	372	373	366
3	373	363	369	367	362	373	366	366	371	374	380	385	381	374	366
4	361	362	363	364	364	366	362	361	365	371	374	385	383	382	384
5	332	370	362	353	358	358	355	358	358	360	357	362	351	346	347
6	358	366	371	363	362	360	357	355	352	361	370	377	376	368	360
7	358	360	362	359	358	360	353	358	364	366	366	366	362	356	346
8	362	359	360	364	357	356	363	364	365	361	355	353	356	351	342
9	369	363	362	364	372	371	367	364	360	362	366	370	371	374	363
10	367	362	362	364	361	360	348	350	362	365	371	378	374	367	362
11	366	368	360	360	361	362	355	352	357	367	372	369	363	361	358
12*	360	360	361	364	363	364	359	361	366	367	376	382	381	374	370
13*	362	360	359	360	360	363	364	357	358	362	365	367	368	365	360
14*	363	364	364	365	366	368	371	372	375	379	380	379	381	381	375
15*	377	374	377	379	378	378	377	378	376	381	381	388	387	383	375
16*	361	366	369	375	377	383	382	379	381	388	387	394	392	386	378
17	365	361	358	361	360	364	371	378	386	388	380	375	372	368	367
18	365	365	364	366	369	370	373	381	389	392	390	392	387	384	386
19*	363	360	360	362	367	370	368	369	374	378	377	371	367	366	368
20*	365	363	364	364	365	367	369	370	381	395	396	393	391	386	376
21*	364	366	365	367	367	364	360	358	363	366	372	373	371	368	360
22	367	366	366	366	365	368	372	376	380	388	376	370	367	359	364
23	368	367	362	361	369	366	366	369	378	379	376	378	375	372	366
24	354	358	355	354	356	357	352	347	350	359	362	365	363	361	359
25	361	364	366	362	362	364	365	365	367	369	373	368	357	349	348
26	365	365	361	356	357	357	361	363	365	365	369	368	361	356	354
27*	360	358	362	360	361	364	369	372	376	380	377	374	366	363	366
28	367	368	369	370	371	371	367	368	379	390	391	389	385	378	370
29	355	360	366	371	369	380	369	373	374	366	366	350	348	345	345
30	356	354	357	357	356	354	356	355	354	354	356	354	348	345	351
31	358	362	355	357	356	356	350	353	361	364	365	361	359	355	355
Mean....	362	363	363	363	364	365	364	365	369	373	374	374	370	366	363
Mean*....	363	363	364	365	366	368	368	368	372	378	379	379	377	373	369

AUGUST, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	362	360	359	360	360	373	375	378	389	397	388	388	386	379	370
2	360	368	362	365	352	355	359	358	354	361	360	357	355	346	339
3	356	357	366	361	361	354	359	351	346	348	350	342	332	334	333
4	355	357	364	355	354	354	351	341	345	351	357	364	350	355	348
5	344	356	353	353	356	354	352	363	375	373	369	364	357	352	343
6*	356	357	359	358	355	357	352	356	366	369	369	369	364	354	346
7*	355	357	357	357	357	358	354	358	368	372	371	372	366	361	361
8*	357	363	360	360	357	356	354	357	359	363	365	366	360	357	359
9	361	363	363	363	363	365	361	355	361	375	384	390	385	378	367
10	305	316	339	323	303	315	355	334	336	329	315	310	314	315	304
11	332	354	346	344	349	351	348	342	334	341	346	347	340	333	335
12*	346	337	339	345	340	345	348	348	350	353	351	348	351	349	348
13*	352	352	349	345	347	352	361	366	368	367	365	371	372	364	361
14	352	355	359	363	361	363	364	366	371	371	371	361	349	332	323
15*	346	347	343	344	345	344	345	352	362	371	369	361	355	346	338
16*	348	350	352	352	353	356	362	369	382	389	385	375	367	359	351
17	354	353	353	358	359	360	364	371	361	361	373	376	374	362	357
18	358	354	351	357	353	353	350	351	358	360	360	362	364	366	362
19	376	359	346	354	348	352	347	358	363	357	350	349	348	347	324
20	354	350	349	346	345	344	342	344	346	349	353	355	356	356	345
21	354	359	346	349	357	345	344	332	336	339	345	351	349	333	315
22	335	340	354	326	308	324	321	311	310	284	285	277	272	266	255
23	316	319	323	325	326	329	330	331	328	328	327	332	336	339	332
24	338	344	333	333	337	336	340	341	335	326	325	333	333	325	308
25*	336	335	339	334	334	330	335	337	340	340	337	326	319	317	324
26*	338	332	333	335	332	335	337	337	341	340	337	337	337	339	340
27*	340	340	341	342	344	346	344	346	347	357	363	357	354	348	345
28	347	341	357	349	357	363	342	336	345	350	335	316	330	340	334
29	319	349	326	326	323	329	323	312	321	328	333	330	321	313	322
30	341	338	338	337	329	335	341	335	324	331	339	314	329	337	334
31	338	337	338	337	332	330	333	336	341	337	333	327	325	324	326
Mean....	346	348	348	347	345	347	348	347	350	352	352	349	347	343	337
Mean*....	347	347	347	347	346	347	349	353	358	362	361	358	355	350	347

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

63

JULY, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
360	358	358	360	361	361	362	360	360	362	10 00	379	0 45	356	23 1
365	368	371	373	370	371	372	367	368	369	11 31	386	1 39	360	26 2
355	352	354	358	359	360	360	361	361	366	11 37	385	17 00	352	33 3
393	382	374	388	382	385	400	368	347	374	21 32	401	24 00	347	54 4
341	331	336	343	345	357	365	359	355	352	2 00	370	0 45	327	43 5
353	346	343	350	350	352	359	362	361	360	11 48	379	17 34	341	38 6
341	341	344	349	354	353	357	360	362	356	11 23	368	16 33	337	31 7
336	346	349	354	356	356	353	353	362	356	7 12	367	16 00	336	31 8
357	354	356	358	360	362	361	364	371	364	13 42	376	17 08	350	26 9
358	354	358	359	359	360	364	359	362	362	12 05	379	7 06	347	32 10
353	349	350	353	356	356	354	358	359	359	10 44	372	17 42	348	24 11
362	356	356	358	362	359	359	359	358	364	12 00	382	17 51	355	27 12
354	355	357	360	362	361	363	363	362	361	13 00	368	16 00	354	14 13
369	366	369	373	376	378	381	381	375	373	13 00	381	0 00	362	19 14
373	368	368	368	370	372	371	369	361	375	12 39	389	24 00	361	28 15
371	365	369	372	369	367	368	364	370	376	12 39	395	0 18	360	35 16
373	370	369	368	365	366	366	365	365	369	9 31	388	3 00	358	30 17
386	388	389	390	390	385	379	378	372	380	10 00	392	1 46	363	29 18
360	359	355	363	364	367	364	368	363	366	10 43	379	17 45	353	26 19
364	352	358	362	362	363	365	365	368	371	10 32	399	17 00	352	47 20
353	351	354	353	356	358	359	362	365	362	11 00	373	17 00	351	22 21
362	364	366	366	363	365	366	367	367	368	10 15	390	14 41	357	33 22
369	365	360	361	353	374	347	359	352	366	10 02	379	22 09	347	32 23
354	352	354	354	351	356	357	358	356	356	12 22	367	8 00	347	20 24
351	353	356	353	355	358	353	360	358	360	11 00	373	14 45	346	27 25
355	352	352	359	359	356	356	359	357	360	11 00	369	17 00	352	17 26
361	361	364	361	361	360	363	364	364	365	10 00	380	0 00	357	23 27
371	371	383	387	382	378	372	352	346	374	10 31	393	23 35	335	58 28
342	345	352	348	345	348	350	350	353	358	6 00	380	15 36	339	41 29
351	346	348	351	351	355	355	354	356	353	21 27	360	14 13	343	17 30
352	353	352	353	356	356	356	354	356	357	10 34	365	17 27	350	15 31
360	357	359	362	362	363	363	362	361	364					30
363	359	360	363	364	365	365	365	365	368					26

AUGUST, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

362	356	352	356	362	356	357	356	360	368	9 33	406	17 31	350	56 1
346	349	353	355	359	361	355	355	355	356	2 15	374	15 00	339	35 2
330	336	339	341	345	353	349	358	353	348	3 00	366	15 42	330	36 3
340	336	337	341	345	352	352	377	352	351	22 54	381	16 54	334	47 4
336	340	342	349	352	356	353	363	359	355	9 00	375	16 13	335	40 5
348	344	344	346	349	350	353	353	353	355	9 42	371	17 42	344	27 6
354	353	354	356	356	356	354	359	366	360	12 00	372	7 15	353	19 7
359	356	355	353	349	352	357	360	360	358	11 27	367	19 41	349	18 8
360	348	343	331	315	312	299	304	294	352	12 19	390	23 45	291	99 9
315	315	312	318	319	322	326	329	329	321	7 00	355	0 12	291	64 10
329	326	326	332	332	333	333	338	344	339	2 09	354	16 21	324	30 11
343	343	345	347	346	343	341	340	347	346	9 36	353	2 31	335	18 12
359	353	347	347	346	349	352	351	351	356	12 38	375	4 00	345	30 13
327	319	344	345	340	336	342	348	346	350	10 00	371	16 36	312	59 14
334	337	337	338	341	338	349	347	348	347	10 33	372	15 39	333	39 15
349	347	349	349	347	347	348	355	357	358	10 00	389	20 21	334	55 16
358	353	358	350	348	337	342	348	362	358	12 00	370	20 50	335	41 17
343	337	332	336	336	331	341	347	348	350	14 00	366	19 17	326	40 18
330	330	338	332	335	337	354	372	357	348	1 00	376	15 00	324	52 19
341	335	336	343	339	341	346	349	350	346	11 41	359	17 12	333	26 20
300	306	303	319	318	310	339	374	342	336	22 42	379	16 00	300	79 21
253	264	281	299	310	313	316	317	302	32	19	383	16 11	250	133 22
325	320	317	322	297	309	319	322	323	324	13 42	340	20 14	295	45 23
295	300	318	329	330	332	332	337	335	329	1 24	347	16 10	284	63 24
326	322	331	332	332	332	333	335	329	331	9 25	341	14 09	315	26 25
338	338	338	339	341	338	339	339	338	337	9 32	342	0 00	329	13 26
346	344	345	345	343	341	346	350	347	347	11 00	363	23 24	335	28 27
334	334	328	302	304	290	304	341	347	334	5 40	366	20 48	287	79 28
328	325	325	328	334	334	331	349	347	328	1 44	358	14 14	305	53 29
325	330	328	330	330	333	335	340	345	333	0 30	349	12 00	314	35 30
327	326	331	331	334	328	332	348	341	333	22 53	351	17 09	323	28 31
334	333	335	337	337	336	339	347	345	344					46
346	344	344	345	345	345	347	348	349	350					26

## PORTO RICO MAGNETIC OBSERVATORY.

SEPTEMBER, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	341	347	342	338	339	341	342	345	347	345	330	334	341	343	346
2*	333	339	341	341	337	336	333	330	334	343	348	347	348	345	339
3*	341	340	338	343	343	343	342	339	343	344	346	338	345	344	342
4*	347	349	347	347	343	341	336	339	345	354	354	351	352	349	344
5*	350	351	351	349	352	354	351	345	342	346	349	353	354	350	349
6	349	347	350	350	353	355	356	357	353	359	362	355	341	352	352
7	335	336	344	343	343	348	349	346	345	345	347	342	343	344	342
8*	332	337	338	338	338	338	337	338	344	349	352	350	345	346	343
9*	345	346	349	351	354	356	355	353	354	356	357	360	368	374	371
10	347	349	349	355	358	361	353	345	342	347	345	341	348	352	343
11	338	341	346	349	350	346	339	341	352	360	361	360	350	342	334
12*	346	347	349	349	349	350	356	359	362	357	350	346	346	346	344
13	354	351	354	348	353	359	364	368	367	362	366	368	362	359	351
14	344	358	357	352	352	355	348	336	335	342	343	342	347	346	338
15	344	345	348	349	349	349	344	348	351	356	356	354	349	346	340
16	350	349	352	357	363	352	344	345	344	344	357	367	353	342	343
17*	353	347	345	343	347	347	347	346	347	352	359	359	358	354	342
18*	341	350	344	343	346	348	345	342	340	345	350	358	360	358	351
19*	349	347	346	349	349	349	352	352	352	351	357	359	363	360	357
20	354	355	354	354	356	359	357	354	358	370	390	388	384	372	341
21	335	338	338	328	329	341	350	350	354	354	350	344	338	333	335
22	336	331	331	349	351	356	348	331	346	342	330	329	329	333	334
23	330	351	329	331	328	335	336	337	342	344	341	336	333	333	334
24	340	343	347	341	344	348	342	343	345	347	350	353	357	357	340
25	337	334	352	335	344	355	368	361	357	346	316	327	326	314	305
26	333	336	339	343	345	351	361	350	350	350	341	325	317	306	301
27	329	330	333	338	347	352	350	341	345	347	322	327	327	325	330
28	333	336	325	328	336	336	326	324	325	320	321	327	325	326	324
29	329	331	333	354	346	346	339	312	297	315	311	292	267	265	262
30	322	334	333	329	328	339	331	329	309	304	304	301	294	289	289
Mean....	341	343	343	344	346	348	347	344	344	347	346	344	342	340	336
Mean*...	344	345	345	345	346	346	345	344	346	350	353	352	354	353	348

OCTOBER, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

1	310	316	319	321	323	326	326	330	336	336	327	323	323	297	300
2	314	314	317	326	325	320	337	330	339	339	326	326	322	306	314
3	341	324	324	326	329	331	334	334	333	330	330	325	324	316	310
4	303	309	306	316	319	327	333	331	330	326	317	308	294	277	290
5	312	317	319	326	329	329	331	333	333	336	339	343	343	337	349
6	324	329	354	347	351	344	353	335	336	336	337	340	331	277	259
7	305	306	309	312	312	312	312	312	312	312	322	324	329	325	323
8*	319	322	322	321	323	325	327	325	321	321	325	329	328	325	323
9*	323	335	329	330	331	331	331	332	329	327	340	346	348	339	333
10*	331	332	334	336	339	339	340	338	338	346	353	355	353	351	337
11*	331	331	333	339	339	337	341	342	350	348	349	339	327	321	325
12	319	328	329	340	351	353	354	358	360	357	352	351	344	336	323
13	303	302	312	318	319	327	316	319	318	314	310	305	318	312	305
14	321	321	323	327	326	330	337	337	325	316	318	321	328	328	323
15*	320	321	323	325	324	330	332	340	345	343	343	338	331	326	320
16*	329	329	328	331	332	330	330	330	331	334	335	340	338	332	328
17*	335	334	337	338	338	338	336	337	338	337	333	335	333	330	325
18*	338	342	342	345	348	351	351	348	347	350	353	357	357	356	352
19	342	342	355	360	361	337	347	340	333	312	310	307	295	286	273
20	311	308	308	314	319	320	316	324	326	324	301	307	305	295	284
21	318	316	317	318	320	321	321	316	313	316	316	307	282	307	
22*	319	325	325	328	324	327	331	331	328	331	330	329	323	314	308
23	322	336	331	332	333	332	336	341	346	352	345	345	336	317	299
24	319	321	321	319	327	332	329	336	327	342	345	348	340	324	315
25	306	307	312	322	325	328	334	323	336	332	324	307	302	291	279
26	312	320	318	312	321	320	309	325	327	335	328	314	305	305	298
27	307	304	307	310	319	319	302	308	316	312	306	283	257	255	267
28	292	299	299	306	305	303	310	312	311	317	319	317	309	301	300
29	311	312	316	323	321	322	317	320	316	319	322	315	313	306	295
30*	314	320	320	322	328	325	336	341	341	344	337	324	323	310	295
31	317	316	321	323	322	323	318	316	314	314	310	305	300	301	298
Mean....	318	321	323	326	328	329	330	330	331	331	329	326	320	312	308
Mean*...	326	329	329	332	333	333	336	336	337	338	340	339	336	330	325

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

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SEPTEMBER, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum		Minimum		Range	Day		
341	324	325	335	324	324	330	335	344	338	9	27	348	17	45	317	31	1
331	334	337	339	338	341	339	340	340	339	11	12	349	8	00	330	19	2
339	337	341	341	341	344	345	345	351	342	24	00	351	16	42	335	16	3
340	338	342	344	345	344	348	347	349	346	10	41	354	7	00	336	18	4
351	342	341	342	342	343	343	343	351	348	13	00	354	17	30	339	15	5
344	337	322	310	312	345	332	356	341	345	11	25	362	19	00	310	52	6
339	341	342	337	328	330	339	330	328	340	10	28	348	22	38	326	22	7
341	338	338	341	343	343	342	343	344	342	11	00	352	9	13	328	24	8
364	356	357	355	352	349	346	346	346	355	14	12	375	1	40	344	31	9
343	341	341	345	342	340	340	336	339	346	6	00	361	23	30	334	27	10
334	331	340	340	343	343	349	349	344	345	10	45	363	13	30	330	33	11
347	348	350	348	351	351	350	348	355	350	9	17	362	14	35	344	18	12
347	345	343	347	345	339	352	350	358	355	8	19	369	20	47	336	33	13
335	337	345	345	341	337	336	338	340	344	3	18	367	15	37	331	36	14
340	340	344	350	349	352	354	355	357	349	24	00	357	16	09	337	20	15
343	342	343	342	342	342	348	344	342	348	12	06	370	23	47	339	31	16
342	342	344	346	348	348	349	346	349	348	11	31	360	16	00	342	18	17
347	343	347	347	348	349	348	348	348	348	13	00	360	9	25	338	22	18
353	351	349	346	348	348	349	350	352	352	13	14	364	19	00	346	18	19
344	333	342	326	334	334	329	320	319	351	11	49	394	24	00	319	75	20
336	336	339	341	341	338	338	338	333	340	10	27	356	0	00	319	37	21
329	321	304	315	318	313	311	323	329	331	5	42	357	18	00	304	53	22
335	335	334	338	341	341	342	341	340	337	1	48	356	0	41	326	30	23
336	337	327	332	320	342	320	317	314	339	13	00	357	23	52	309	48	24
313	322	331	331	329	337	331	343	337	335	6	52	371	14	41	301	70	25
312	321	325	323	325	322	322	323	322	331	7	09	363	14	46	300	63	26
332	329	327	321	330	326	321	338	326	333	6	00	352	19	00	321	31	27
328	328	329	329	332	330	331	330	326	328	5	22	342	10	00	320	22	28
245	264	277	290	285	302	307	307	308	304	4	19	361	15	13	225	136	29
292	(296)	300	303	307	309	311	311	309	311	5	21	342	15	25	287	55	30
334	333	334	335	335	337	337	338	338	341							37	
346	343	345	345	346	346	346	346	348	347							20	

OCTOBER, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

301	300	292	309	311	294	291	302	320	314	9	40	338	18	22	290	48	1
317	314	308	317	318	332	321	323	326	322	9	17	342	14	10	305	37	2
314	315	323	311	307	302	293	306	305	320	0	47	343	22	44	291	52	3
289	280	286	303	306	306	308	310	307	308	7	15	334	13	25	269	65	4
342	332	333	329	311	303	311	326	321	328	14	13	354	20	35	295	59	5
222	271	283	289	292	293	298	300	301	310	3	17	365	15	57	219	146	6
310	318	321	313	307	306	318	316	317	315	13	06	331	20	40	300	31	7
319	311	310	314	318	321	322	321	323	321	12	09	330	16	45	308	22	8
330	332	334	333	331	329	332	331	329	333	12	22	349	0	33	322	27	9
330	324	311	318	327	328	330	327	329	335	11	38	356	18	13	308	48	10
319	323	326	332	330	326	319	337	321	333	9	26	352	16	30	316	36	11
321	312	300	266	301	306	279	315	306	328	9	00	360	18	41	260	100	12
311	316	311	322	313	308	329	319	318	314	21	18	333	11	39	299	34	13
323	320	303	314	314	318	320	328	318	322	7	27	339	17	52	303	36	14
325	325	329	329	331	331	330	331	330	330	9	29	345	0	00	318	27	15
326	329	330	330	332	331	334	334	334	332	12	31	341	16	00	326	15	16
323	331	339	338	338	337	337	337	337	335	18	00	339	16	00	323	16	17
348	344	345	346	345	343	337	339	337	347	12	00	357	24	00	337	20	18
254	261	266	280	281	300	289	293	306	310	4	57	363	16	14	248	115	19
284	290	303	310	307	306	305	327	323	309	23	08	329	16	00	284	45	20
308	312	311	317	319	318	323	320	314	314	0	00	323	14	00	282	41	21
308	304	300	302	313	324	316	318	320	320	10	33	333	18	09	298	35	22
286	291	305	300	305	306	321	315	316	323	10	30	355	16	00	286	69	23
311	315	319	323	314	314	315	308	306	324	12	14	349	24	00	306	43	24
276	283	283	283	324	291	297	298	293	306	9	20	338	16	20	275	63	25
298	293	292	298	300	302	301	303	326	311	10	07	335	18	19	286	49	26
299	297	297	305	299	314	322	299	307	300	0	00	326	14	16	248	78	27
303	303	297	300	302	305	308	306	308	306	11	22	319	0	42	288	31	28
290	293	299	301	304	303	315	315	312	311	4	17	327	15	34	289	38	29
292	301	310	312	314	315	315	315	314	320	10	00	344	15	43	290	54	30
301	312	316	317	318	320	317	320	318	314	5	50	324	15	00	298	26	31
306	308	309	312	314	314	315	317	317	320							49	
322	322	323	325	328	328	327	329	327	330							30	

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NOVEMBER, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	318	318	322	324	323	323	328	328	324	320	315	317	318	316	316
2	323	327	332	333	339	324	329	341	337	340	331	325	312	307	305
3*	325	326	326	329	331	332	337	346	351	348	342	337	334	334	331
4*	334	336	338	337	332	336	339	345	343	337	337	335	332	333	333
5*	325	330	330	331	332	331	333	336	333	333	339	336	330	325	331
6*	323	323	327	328	329	330	332	333	338	338	341	344	341	331	331
7	331	334	332	333	338	333	327	338	344	347	349	346	340	334	332
8	323	326	326	327	334	335	339	350	356	355	348	341	341	337	340
9	328	327	327	330	329	333	335	336	342	351	350	345	336	321	307
10	327	330	322	324	328	331	340	349	343	338	340	335	331	330	327
11*	324	325	328	331	331	333	342	345	345	347	344	338	326	316	315
12*	325	326	329	330	332	333	339	339	334	330	330	321	320	321	317
13*	329	329	330	332	334	335	336	338	335	328	325	321	318	316	320
14*	337	337	338	340	343	347	359	361	345	345	348	340	336	326	319
15*	330	331	330	331	333	335	339	341	339	338	337	341	337	329	327
16	321	323	314	318	323	327	331	330	329	327	330	322	325	313	316
17	304	307	315	322	324	332	344	337	328	327	316	306	312	306	300
18	310	314	317	320	325	333	323	323	306	301	277	269	269	263	264
19	309	310	317	317	314	319	318	312	313	299	300	297	288	292	296
20	305	306	308	310	311	313	319	316	310	300	301	296	289	283	275
21	301	303	316	318	319	324	331	328	322	311	305	290	290	296	300
22	315	317	317	316	323	324	330	326	319	311	300	292	287	282	300
23	321	318	320	320	322	326	327	327	323	321	320	316	315	316	320
24*	318	315	318	321	324	321	326	325	321	320	316	308	307	316	316
25	316	320	324	326	328	332	340	341	342	342	339	331	332	332	320
26	320	320	321	326	326	328	334	332	328	331	333	332	324	318	315
27	320	320	318	324	323	326	332	337	337	333	316	319	315	312	306
28	314	326	320	326	332	335	337	348	346	339	331	331	302	309	309
29	305	307	311	313	336	321	324	349	342	336	315	307	299	294	287
30	301	302	306	309	315	320	323	324	331	336	329	325	323	309	295
Mean.....	319	321	323	325	328	329	333	336	334	331	327	322	318	314	312
Mean*....	327	328	329	331	332	333	338	341	338	336	336	332	328	324	324

DECEMBER, 1910.

28500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	309	308	303	310	316	320	327	332	333	331	327	323	320	313	313
2	304	311	312	311	319	318	324	333	337	339	319	319	320	296	303
3	311	311	316	317	319	321	327	328	330	333	335	342	337	326	326
4	316	316	314	318	321	324	329	335	334	327	327	329	329	329	321
5	315	315	318	321	320	321	321	329	329	330	322	327	326	326	320
6	317	315	318	320	327	327	333	338	335	328	326	324	330	330	325
7	310	310	314	318	316	322	329	333	332	332	335	333	324	325	325
8*	321	327	326	327	327	322	326	335	333	334	331	327	323	321	319
9*	317	320	322	324	326	329	334	331	326	322	327	324	316	316	319
10*	320	321	323	325	327	328	332	330	323	315	317	318	311	311	311
11*	324	325	328	330	331	331	335	336	329	326	323	312	300	301	310
12*	326	328	328	332	333	337	340	342	337	329	324	322	318	325	322
13	327	334	332	335	332	341	343	339	337	333	328	311	296	305	313
14	308	310	310	309	312	316	322	322	317	314	312	313	309	308	313
15	323	317	337	336	341	324	340	340	323	303	310	311	312	311	304
16*	310	309	309	307	312	312	315	316	315	317	316	312	305	303	301
17*	308	309	307	309	309	312	314	317	311	309	317	324	320	319	320
18	314	315	314	317	315	319	325	327	330	328	329	315	307	304	303
19	314	314	325	321	323	324	330	330	325	319	313	310	302	300	306
20	314	313	314	319	316	315	321	317	322	316	306	302	292	295	305
21	308	310	311	318	324	321	329	325	320	314	310	313	312	295	290
22	309	309	316	313	334	328	331	329	317	316	314	300	297	295	291
23	313	317	317	309	310	311	316	323	315	311	313	313	299	298	304
24*	315	317	318	318	321	324	329	333	331	330	325	316	309	309	294
25	310	316	318	327	324	325	324	327	310	318	310	313	310	307	314
26	305	307	311	313	316	315	322	323	327	329	320	310	304	307	313
27*	322	321	326	332	334	337	341	344	340	345	332	324	317	317	324
28	316	319	327	328	325	326	334	341	336	341	338	326	285	303	289
29	308	303	302	304	304	304	309	310	305	300	306	292	297	306	309
30	302	304	307	312	313	312	316	318	321	333	329	314	309	313	310
31*	311	312	312	312	313	313	317	316	309	319	323	311	303	308	308
Mean.....	314	315	317	319	321	322	327	330	325	324	321	317	311	310	311
Mean*....	317	319	320	322	323	324	328	330	325	325	324	319	313	313	314

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

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NOVEMBER, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
315	315	317	320	322	330	335	326	329	322	21 42	336	16 07	314	22 1
310	315	319	320	323	321	319	322	326	324	9 34	341	15 00	305	36 2
332	334	334	334	333	332	334	335	335	335	9 09	351	1 05	324	27 3
333	330	319	318	316	316	316	323	325	331	8 00	345	21 13	314	31 4
333	330	328	328	310	314	313	318	321	328	11 11	339	20 00	310	29 5
332	332	334	332	330	329	329	328	330	332	12 00	344	0 00	321	23 6
335	333	333	333	325	322	314	313	319	333	10 52	350	23 00	313	37 7
329	317	323	316	322	315	322	324	327	332	9 00	356	21 02	315	41 8
310	304	310	307	311	326	324	321	314	326	10 00	351	16 46	299	52 9
311	316	323	323	323	318	313	320	325	328	7 58	349	16 24	305	44 10
316	321	323	325	327	327	324	324	322	329	10 33	347	14 17	314	33 11
320	324	329	330	329	329	330	327	327	328	7 24	339	15 09	316	23 12
326	330	332	333	331	332	332	331	334	329	8 00	338	13 40	314	24 13
321	324	328	328	326	325	323	325	328	335	8 00	361	15 00	319	42 14
327	325	326	326	328	327	329	326	325	332	7 50	342	23 47	321	21 15
315	322	309	291	302	308	300	322	302	318	7 08	332	19 07	290	42 16
293	287	287	292	293	321	305	303	306	311	7 19	361	16 19	281	80 17
273	270	296	296	302	305	308	305	307	299	5 47	336	16 47	259	77 18
292	298	302	306	307	306	308	307	305	306	3 30	320	13 32	273	47 19
270	270	282	285	280	289	305	300	302	297	7 00	319	16 30	267	52 20
304	306	312	312	311	314	315	316	314	311	7 00	331	12 24	285	46 21
312	310	307	305	311	314	315	317	315	311	7 24	330	13 43	281	49 22
316	314	308	391	306	317	316	309	311	317	7 38	327	19 00	301	26 23
322	317	317	314	317	313	317	319	316	317	7 28	327	12 32	304	23 24
318	315	309	313	305	299	309	313	319	324	10 23	343	20 34	296	47 25
314	313	320	322	324	322	322	321	322	324	7 23	337	15 47	313	24 26
307	303	303	303	302	303	310	311	311	316	8 54	338	20 17	299	39 27
293	284	284	287	293	298	299	301	301	314	8 44	348	16 33	282	66 28
268	246	243	246	264	275	279	286	293	298	7 47	350	18 20	240	110 29
304	305	300	307	313	309	303	312	304	313	10 00	336	14 45	292	44 30
312	310	312	312	313	315	316	319	317	321					42
326	327	327	327	325	324	325	326	326	330					28

DECEMBER, 1910.

28500 $\gamma$  PLUS TABULAR QUANTITIES.

317	315	315	312	302	303	311	314	313	316	8 00	332	19 49	300	32 1
304	307	310	305	299	302	308	309	313	313	9 40	340	19 44	291	49 2
321	313	296	301	310	316	320	314	314	320	11 51	343	18 07	292	51 3
301	301	310	315	312	312	315	317	315	319	8 00	335	16 26	298	37 4
316	317	317	309	301	306	314	312	315	319	9 41	331	20 00	301	30 5
320	(316)	313	305	293	301	308	306	315	320	8 17	340	20 41	287	53 6
327	323	318	317	319	316	319	321	322	322	10 36	338	0 51	307	31 7
320	319	313	321	321	318	317	320	320	324	8 00	335	17 54	312	23 8
319	321	319	316	317	317	317	316	317	321	7 22	334	22 34	316	18 9
320	325	326	320	323	323	323	321	323	322	7 24	332	14 17	310	23 10
316	325	326	326	327	329	328	325	325	324	7 47	338	13 40	298	40 11
338	338	338	336	337	333	333	326	332	332	7 30	343	13 00	318	25 12
317	310	294	306	296	297	325	311	307	320	7 10	343	20 29	291	52 13
317	316	317	318	318	315	321	322	322	315	23 50	326	0 38	305	21 14
297	297	300	288	294	294	306	303	303	313	7 55	343	19 25	286	57 15
294	299	297	297	301	299	302	305	305	307	10 18	318	15 55	294	24 16
318	315	313	314	313	312	312	313	316	314	11 53	325	0 00	305	20 17
292	299	303	299	304	303	305	307	311	312	9 31	332	16 15	291	41 18
304	303	304	301	298	294	307	319	318	313	8 15	332	21 00	294	38 19
310	308	306	314	309	309	305	307	309	310	8 43	322	13 29	289	33 20
309	312	317	319	316	310	310	316	316	314	7 00	329	15 00	290	39 21
289	292	295	299	303	306	314	308	304	309	5 00	334	16 00	289	45 22
309	307	307	313	307	313	313	314	315	311	7 56	323	13 31	298	25 23
295	300	305	311	308	311	307	307	308	314	7 46	334	15 23	292	42 24
305	297	301	302	307	305	310	307	306	312	7 44	330	17 00	297	33 25
318	(319)	(320)	(320)	(320)	(319)	319	319	316	316	9 44	329	13 24	303	26 26
327	328	326	321	321	318	315	315	318	327	9 37	347	21 48	313	34 27
298	276	255	273	290	289	287	290	289	308	10 08	341	17 36	227	114 28
297	293	304	300	305	297	296	299	312	303	7 41	318	21 27	289	29 29
307	301	301	296	298	305	305	307	308	310	10 12	333	17 28	292	41 30
305	306	307	307	309	306	308	307	306	310	10 31	324	15 42	302	22 31
311	310	309	309	309	312	313	313	316	319					37
315	318	317	317	318	317	316	316	317	319					27

JANUARY, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	653	652	657	657	653	648	649	631	627	623	614	623	628	613	621
2	655	653	650	651	657	650	647	640	635	633	637	644	652	646	644
3	650	653	655	657	653	653	648	623	614	621	623	632	648	658	675
4	662	668	668	669	669	668	665	667	658	643	648	654	659	659	660
5	664	665	669	667	668	669	668	664	657	651	647	640	657	663	665
6*	666	665	666	668	668	668	668	662	656	646	636	631	642	651	659
7	662	663	665	665	667	667	669	667	663	659	657	657	657	658	660
8*	664	664	663	665	667	668	670	669	664	659	651	651	657	659	663
9*	666	667	666	666	670	670	670	666	661	659	658	649	651	655	658
10*	666	665	664	668	668	668	668	664	658	646	650	659	667	664	664
11*	666	664	664	664	664	664	666	666	657	649	649	652	654	661	664
12*	662	662	662	662	661	662	664	664	659	651	653	654	657	660	659
13	670	672	671	667	664	669	665	662	654	655	653	654	657	660	661
14	675	673	672	670	670	672	670	670	666	665	659	659	665	663	664
15	673	670	669	669	669	667	669	664	661	655	654	655	661	665	664
16*	671	669	668	668	666	665	665	664	662	661	661	661	662	662	664
17*	670	671	669	670	669	669	667	665	659	657	651	655	652	657	661
18	666	667	668	672	668	666	667	664	661	656	656	656	657	663	666
19	662	662	664	663	662	662	662	660	653	648	640	642	640	641	649
20	655	657	659	661	659	658	658	652	646	639	642	643	649	652	656
21*	661	661	663	665	665	666	667	663	651	650	649	647	653	655	655
22*	661	662	664	665	667	666	667	666	661	655	650	644	645	653	658
23	660	660	660	662	664	664	666	664	660	654	648	646	651	652	655
24	660	661	660	662	661	663	665	667	657	649	648	647	644	648	651
25	651	650	651	661	661	663	671	671	660	657	652	651	650	651	641
26	666	668	665	665	665	666	668	668	664	660	654	650	650	654	655
27	666	666	666	665	665	675	663	665	659	657	654	653	653	659	659
28	671	670	670	669	669	667	665	670	664	659	651	643	661	663	662
29	676	676	670	670	667	666	670	666	666	662	656	653	662	666	660
30	671	672	681	664	666	666	670	666	662	656	653	648	657	661	660
31	691	691	688	690	682	730	668	670	664	664	655	657	672	676	665
Mean....	665	665	665	666	665	667	665	662	656	651	649	650	654	656	658
Mean*....	665	665	665	666	666	667	667	665	659	653	651	650	654	658	660

FEBRUARY, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

1	675	677	677	677	675	673	673	671	667	659	653	656	661	663	665
2	662	673	676	671	669	671	671	676	670	664	645	656	660	664	666
3	674	670	676	680	680	678	676	671	666	663	664	666	667	661	663
4	672	676	676	678	680	678	680	677	671	666	662	667	668	669	670
5	673	674	674	676	677	678	677	674	669	666	670	669	670	669	670
6	679	675	675	678	677	680	680	677	670	663	666	671	672	668	678
7	680	680	680	680	681	682	683	677	669	667	669	671	671	674	674
8	681	679	679	679	679	681	679	673	673	671	671	672	673	672	672
9	676	672	674	672	672	676	676	676	671	667	669	663	662	658	655
10	668	666	666	664	661	665	665	663	663	661	660	659	658	656	656
11	669	665	665	665	664	661	661	657	658	662	664	660	657	658	654
12*	666	666	665	664	664	664	664	662	658	654	658	654	654	652	653
13*	665	665	664	663	663	659	663	662	659	657	654	644	644	645	645
14*	663	664	663	663	663	658	661	661	660	656	654	652	649	652	658
15*	666	667	667	667	667	664	663	662	657	653	654	657	654	653	653
16*	666	666	666	666	666	665	665	665	665	665	666	671	669	665	659
17*	667	667	668	670	669	666	666	665	666	661	665	667	667	663	661
18*	666	667	667	670	670	669	668	665	664	664	662	661	661	662	667
19*	667	668	670	671	671	668	668	662	663	661	661	664	661	659	660
20*	663	665	666	667	668	667	667	665	665	662	661	656	657	653	655
21	659	661	663	662	664	664	663	660	660	663	662	658	656	648	645
22	662	665	666	667	665	663	669	666	660	659	656	652	653	657	647
23	662	668	670	667	665	665	665	661	659	669	664	670	664	662	665
24	668	666	667	664	668	664	662	656	656	654	666	661	664	662	662
25*	671	670	669	667	667	665	666	663	660	657	657	656	(654)	652	(654)
26	671	669	668	667	665	664	664	658	655	655	653	656	656	657	657
27	681	675	674	673	672	671	671	671	669	671	673	675	672	669	668
28	682	683	680	680	678	676	676	676	676	678	674	670	671	669	667
Mean....	670	670	670	670	670	669	669	667	664	662	662	662	661	660	660
Mean*....	666	666	666	667	667	664	665	663	661	659	659	659	657	656	656

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

69

JANUARY, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
638	644	645	644	649	644	644	644	654	640	1 17	660	10 14	607	53 1
640	643	642	650	638	637	642	641	644	645	4 15	665	8 34	627	38 2
638	653	662	677	664	673	667	668	673	652	15 10	683	8 43	608	75 3
665	664	662	665	670	660	665	665	665	662	0 05	679	10 00	643	36 4
665	665	667	666	667	665	664	663	664	662	6 00	669	12 00	640	29 5
663	661	665	665	664	664	662	662	662	659	5 00	668	11 38	629	39 6
661	663	667	669	668	668	667	663	664	664	7 00	669	13 00	657	12 7
668	669	671	672	672	670	668	669	665	665	21 00	672	11 17	649	23 8
661	664	667	669	669	669	669	669	669	664	7 00	670	12 15	647	23 9
662	664	664	665	664	666	666	665	667	663	0 00	669	10 33	642	27 10
665	665	664	666	666	665	665	665	665	662	0 00	667	10 41	648	19 11
660	664	665	665	666	668	670	672	671	662	23 00	672	10 25	649	23 12
663	665	667	666	667	671	667	669	671	664	2 16	674	10 16	650	24 13
665	666	664	662	668	666	670	671	671	667	1 00	675	11 31	656	19 14
664	668	665	664	665	666	666	668	669	665	1 11	675	11 00	654	21 15
666	670	668	664	664	666	666	669	672	666	24 00	672	11 34	658	14 16
665	667	667	665	661	659	663	665	663	663	0 00	672	11 00	651	21 17
662	663	662	662	662	660	660	660	661	663	4 00	672	11 00	656	16 18
653	655	654	650	653	652	656	656	656	654	2 54	666	11 19	640	26 19
660	663	663	662	661	661	661	660	661	656	18 00	663	11 25	640	23 20
661	663	666	666	666	664	662	661	660	660	6 55	667	11 27	646	21 21
662	664	664	664	664	664	663	661	660	660	7 20	668	12 25	643	22 22
655	657	659	661	661	663	660	659	659	658	7 00	666	12 00	646	20 23
656	654	656	658	660	662	662	658	658	657	8 00	667	13 00	644	23 24
655	648	655	663	668	669	671	671	667	659	19 45	674	14 48	639	35 25
656	654	656	658	660	666	668	670	670	662	1 44	674	12 00	650	24 26
663	661	662	667	667	669	674	672	672	664	5 48	678	13 16	650	28 27
660	670	670	676	676	669	666	670	671	666	19 52	676	9 13	644	32 28
657	667	671	656	656	661	677	677	677	665	23 40	687	11 04	641	46 29
670	658	655	654	644	666	667	664	668	662	2 48	684	12 14	645	39 30
661	663	682	681	673	679	677	681	676	676	6 06	734	11 43	652	82 31
659	661	663	663	663	664	665	665	665	661					30
663	665	666	666	666	666	666	666	666	663					24

FEBRUARY, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

671	674	675	675	673	673	665	673	681	670	24 00	681	11 25	652	29 1
667	679	669	676	675	671	670	669	673	668	2 17	685	11 09	643	42 2
669	677	678	678	676	672	674	672	672	672	4 00	680	14 00	661	19 3
669	673	676	677	677	676	675	675	674	673	7 22	680	10 44	661	19 4
671	673	678	680	678	673	670	674	674	673	20 34	689	10 00	666	23 5
676	674	690	691	690	686	684	682	682	678	19 00	691	10 18	661	30 6
676	678	676	676	678	684	685	682	681	677	21 29	688	10 00	667	21 7
673	672	678	680	678	678	683	682	679	677	1 00	681	10 26	669	12 8
656	657	663	667	667	661	666	671	666	667	0 00	679	14 00	655	24 9
656	658	664	667	670	671	671	671	670	664	21 00	671	13 15	654	17 10
652	654	657	660	665	665	666	668	668	661	0 00	670	16 00	652	18 11
654	654	658	659	660	660	662	662	664	660	0 00	668	14 33	650	18 12
653	653	658	659	662	661	659	663	663	658	2 00	665	13 32	643	22 13
661	662	662	661	661	661	662	664	666	660	24 00	666	13 20	647	19 14
657	659	660	659	658	662	662	664	666	660	2 00	667	10 29	651	16 15
661	667	667	666	665	663	664	665	666	666	12 00	671	15 00	659	12 16
663	663	665	666	664	665	664	665	666	665	3 35	671	10 00	661	10 17
664	667	670	668	667	667	666	666	666	666	4 16	671	10 49	658	13 18
661	663	667	667	666	665	665	666	666	665	4 00	671	14 00	659	12 19
657	661	666	667	665	665	661	658	657	662	6 41	668	13 18	651	17 20
651	660	662	658	658	660	666	665	668	660	23 51	671	14 33	641	30 21
659	663	661	673	671	673	671	671	668	663	21 32	675	14 54	646	29 22
662	664	668	668	672	676	674	678	670	667	21 31	678	8 05	658	20 23
662	664	666	672	674	674	675	674	673	665	22 00	675	8 50	650	24 24
(656)	657	658	662	664	666	668	670	672	663	0 00	673	14 00	652	21 25
656	665	662	664	668	671	673	675	676	664	23 39	676	15 34	652	24 26
670	668	667	669	671	673	678	681	682	673	24 00	682	15 35	665	17 27
668	668	674	672	672	672	673	675	676	674	2 00	683	15 15	665	18 28
663	665	668	669	670	670	670	671	671	667					20
659	661	663	663	664	664	663	664	665	662					16

MARCH, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	676	679	680	675	673	670	665	665	665	664	664	665	663	669	666
2	669	669	669	670	669	666	663	662	661	660	659	652	646	652	646
3	664	665	665	665	666	664	661	656	656	654	654	653	645	645	656
4	660	664	677	675	675	671	669	662	658	660	658	659	656	653	651
5	665	667	667	668	668	667	664	665	660	657	652	651	645	645	657
6	665	665	663	677	676	677	668	663	662	663	657	655	654	656	660
7	666	666	668	666	669	667	665	660	659	654	653	651	648	654	659
8	667	668	667	668	668	667	668	670	666	663	658	655	653	656	657
9*	663	663	664	664	665	664	662	660	656	654	654	652	649	647	649
10*	667	667	668	666	669	669	666	664	662	655	654	653	648	648	653
11*	662	663	663	663	667	663	664	664	662	659	659	655	653	652	653
12*	665	664	664	663	663	661	660	661	661	664	664	663	662	661	661
13*	659	663	664	666	664	663	662	659	662	663	659	659	656	656	656
14	665	664	664	663	661	660	659	658	657	654	652	656	659	663	658
15*	671	671	671	668	665	664	662	663	665	667	666	667	668	671	671
16*	667	668	667	665	663	660	657	654	654	654	657	655	658	658	658
17*	668	668	668	668	667	662	660	660	659	660	664	663	661	662	662
18	664	664	666	666	662	661	658	650	654	647	653	654	660	676	666
19	667	666	667	671	670	669	668	667	653	649	655	652	671	670	669
20	676	678	680	680	679	679	676	671	671	670	670	670	670	672	674
21	671	673	681	669	674	678	676	673	663	659	666	665	667	673	670
22	671	672	674	674	674	677	674	674	665	662	656	656	654	657	666
23	669	665	668	672	677	676	675	673	666	660	654	652	652	654	654
24*	668	667	668	671	671	672	672	670	664	660	658	658	661	660	660
25	667	667	667	664	664	667	669	671	669	665	662	653	650	658	658
Mean.....	668	670	671	670	670	669	666	664	662	659	659	657	657	660	661
Mean*....	666	667	667	667	667	665	663	662	661	659	659	658	658	658	659

APRIL, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

1	677	677	676	677	678	678	674	672	671	667	661	660	661	665	666
2	673	675	677	679	678	677	673	667	663	658	658	657	655	659	663
3*	670	673	674	675	675	675	672	670	666	667	667	667	665	670	673
4*	675	673	676	677	678	678	674	672	668	666	663	660	661	665	667
5	669	670	672	673	675	673	672	667	666	661	660	657	657	662	663
6*	671	672	673	674	675	675	672	666	661	656	651	652	657	660	663
7*	666	667	669	669	670	672	669	662	663	657	654	656	659	664	667
8*	670	669	670	670	671	672	672	667	664	661	661	659	661	664	664
9*	670	669	671	669	670	671	671	670	667	665	665	664	664	665	666
10	669	671	673	672	675	680	675	673	670	668	664	657	664	667	667
11	672	672	671	671	671	671	669	668	667	663	660	658	658	661	661
12	673	675	673	676	669	669	671	674	669	668	663	663	665	669	669
13	676	675	675	674	673	673	675	674	672	671	670	672	675	675	675
14*	677	675	674	674	673	673	674	677	677	674	672	674	674	671	673
15*	677	678	677	676	675	674	675	674	674	670	669	671	672	671	670
16	669	671	680	677	678	676	672	669	669	670	668	667	671	677	675
17	676	682	683	683	680	677	675	676	(673)	(671)	(670)	(668)	(669)	(670)	(672)
1	678	678	678	681	677	675	669	666	668	672	674	675	679	682	682
19	677	678	679	683	680	679	675	670	670	672	669	672	675	675	676
20	676	677	678	679	680	680	675	674	669	668	665	663	664	669	671
21*	674	673	673	674	676	678	673	667	663	664	667	666	667	670	671
22*	674	673	673	673	675	676	673	668	664	663	662	662	662	663	665
23	672	673	673	672	673	673	672	675	672	672	665	661	661	664	667
24	675	674	674	674	674	676	676	676	673	670	669	671	672	671	673
25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Mean.....	673	674	675	675	675	675	673	670	668	666	665	664	665	667	669
Mean*....	672	672	673	673	674	674	672	669	666	664	664	663	664	666	668

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

71

MARCH, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
670	668	668	665	665	666	665	666	667	668	2 15	680	13 00	663	17 1
654	656	660	660	659	659	659	660	663	660	1 40	672	13 08	645	27 2
660	660	661	653	653	661	657	656	659	658	5 00	666	13 21	640	26 3
652	657	661	662	663	663	664	663	664	662	3 47	679	14 34	650	29 4
660	665	664	664	663	659	661	662	663	661	4 17	669	13 15	643	26 5
660	663	668	672	670	670	670	669	667	665	6 00	677	13 00	654	23 6
659	661	667	669	670	668	671	666	667	663	22 00	671	13 00	648	23 7
655	660	663	663	664	665	665	663	664	663	7 57	670	13 00	653	17 8
654	659	665	666	665	668	669	669	668	660	22 00	669	14 50	647	22 9
656	660	663	668	669	670	668	666	665	662	6 00	669	13 22	647	22 10
653	657	659	663	664	664	664	665	664	661	4 32	668	13 33	651	17 11
662	663	661	660	663	664	665	664	665	663	22 00	665	8 34	657	8 12
656	656	659	661	663	664	664	664	665	661	23 25	667	13 35	654	13 13
655	659	660	664	665	666	668	671	671	661	23 12	672	11 00	652	20 14
666	665	665	664	665	665	665	666	666	667	14 21	672	7 00	662	10 15
659	656	657	655	655	656	656	658	659	658	2 00	668	9 00	654	14 16
661	659	661	661	660	661	662	663	663	663	3 18	669	8 49	657	12 17
666	664	663	666	670	666	664	665	665	662	14 19	677	9 38	644	13 18
679	675	659	685	683	680	678	680	679	669	13 27	688	9 40	642	19 19
672	673	673	674	675	674	671	666	669	673	4 00	680	23 32	663	17 20
667	664	667	667	665	673	672	666	670	670	2 40	684	10 00	659	25 21
672	671	677	672	675	675	674	672	672	669	6 00	677	13 00	654	23 22
662	667	670	673	675	672	671	671	669	667	5 00	677	13 46	651	26 23
660	662	664	669	670	671	671	670	668	666	7 00	672	11 00	658	14 24
661	660	663	668	674	675	677	677	677	666	22 31	678	12 33	649	29 25
667	664	670	672	673	675	673	673	676	667	0 00	677	11 49	644	33 26
659	664	654	655	663	677	678	680	681	665	22 29	684	14 03	634	50 27
677	681	670	671	673	668	673	673	655	672	2 00	688	24 00	655	33 28
674	676	675	671	672	672	672	672	674	677	2 05	702	0 16	652	50 29
670	672	670	669	669	668	668	670	671	668	2 00	676	11 00	654	22 30
671	674	672	667	672	676	678	676	678	669	24 00	678	10 00	659	19 31
663	664	665	666	668	668	668	668	668	665					24
660	661	663	663	665	666	666	666	666	663					15

APRIL, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

665	670	670	673	670	673	673	672	671	671	4 38	679	12 00	660	19 1
667	668	671	671	671	670	669	668	668	668	3 33	681	13 00	655	26 2
674	677	678	677	674	678	677	676	675	673	18 00	678	13 00	665	13 3
669	671	673	673	673	672	671	669	669	671	5 21	680	12 00	660	20 4
666	668	671	671	672	670	671	671	671	668	5 00	675	12 00	657	18 5
664	665	667	671	671	672	670	669	668	666	5 44	676	11 00	651	25 6
667	667	670	671	673	672	672	670	670	666	20 00	673	11 00	654	19 7
665	667	669	670	673	672	672	672	671	668	20 00	673	12 40	657	16 8
667	674	671	672	673	673	672	671	669	669	17 00	674	12 00	664	10 9
667	673	673	672	673	673	672	672	673	671	6 07	681	11 50	656	25 10
665	669	667	672	677	680	677	675	673	669	21 00	680	11 45	657	23 11
669	666	673	676	673	675	680	678	677	672	22 08	682	12 29	659	23 12
675	672	669	673	673	675	676	676	674	674	0 32	679	18 00	669	10 13
674	677	675	674	674	674	674	675	674	674	9 00	677	14 00	671	6 14
671	672	671	672	673	672	672	671	673	673	2 00	678	10 30	668	10 15
672	670	675	673	677	678	675	676	668	673	3 12	682	11 29	666	16 16
(674)	676	678	680	673	671	672	679	679	675	3 00	683	(12 00)	(668)	15 17
682	678	683	683	682	681	677	677	677	677	14 44	686	8 00	666	20 18
676	675	676	676	678	678	677	676	676	676	4 00	681	7 36	669	12 19
674	675	677	679	678	677	675	674	674	674	4 53	681	12 38	662	19 20
671	672	675	679	679	677	677	677	674	672	20 00	679	9 13	662	17 21
668	671	673	676	677	676	675	674	674	671	21 00	677	12 00	662	15 22
670	672	672	674	677	678	678	678	677	672	21 00	678	12 00	661	17 23
...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
670	672	673	674	675	675	674	674	673	671					17
669	671	672	674	674	674	673	672	672	670					15

MAY, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7*	687	687	687	687	688	688	686	683	688	688	685	683	682	684	683
8*	681	682	683	681	684	687	687	689	692	692	690	681	682	681	683
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	683	681	682	682	679	681	678	675	676	678	682	675	674	676	679
11	682	687	677	680	682	682	682	686	686	685	684	674	682	679	682
12*	688	688	685	685	684	683	681	680	681	678	683	682	678	678	680
13*	684	686	683	683	682	681	680	679	681	680	683	682	679	683	682
14	716	653	650	650	668	680	690	678	679	698	701	718	688	718	726
15	700	704	698	699	700	698	694	697	701	695	696	696	702	703	702
16	694	694	696	698	698	696	692	688	686	685	686	691	695	698	702
17*	691	693	695	695	698	696	693	688	685	691	694	696	697	696	701
18	695	690	679	683	693	690	690	698	689	687	683	681	689	705	707
19	709	706	704	708	708	703	700	696	693	692	695	696	696	699	700
20	693	694	695	696	697	698	697	698	702	701	701	702	701	698	701
21	690	690	691	691	692	694	692	689	685	685	684	686	680	682	689
22*	685	689	683	682	687	689	688	689	692	691	692	694	692	695	693
23*	691	689	688	691	691	694	696	695	698	697	697	701	698	701	695
24*	689	688	686	686	688	689	690	691	691	693	691	689	691	689	689
25	687	686	686	685	686	685	683	684	684	683	682	683	682	685	683
26	686	688	684	688	687	686	683	683	682	681	681	683	685	685	690
27	687	694	690	686	687	687	682	680	686	690	685	688	695	698	693
28	687	689	683	686	687	685	685	685	686	689	688	688	687	689	689
29*	687	687	689	689	687	685	681	685	685	688	695	695	697	699	697
30*	690	691	691	692	693	688	685	681	680	682	688	693	698	697	695
31	689	691	691	692	692	691	685	682	683	684	686	690	689	694	694
Mean....	690	689	686	687	689	689	688	687	687	688	689	689	689	692	693
Mean*....	687	688	687	687	688	688	687	686	687	688	690	690	689	690	690

JUNE, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

1	683	685	685	687	686	683	678	674	674	681	682	686	690	695	695
2	685	688	687	689	689	692	688	685	680	677	671	672	679	686	691
3*	682	683	683	684	686	687	683	683	681	684	686	687	690	690	692
4*	682	684	684	686	688	688	688	685	685	682	678	679	678	682	688
5*	683	683	684	685	687	689	687	687	683	678	675	675	678	687	687
6	682	683	683	683	684	686	686	685	685	681	682	678	677	682	686
7	682	682	682	684	683	683	685	684	681	681	681	683	684	685	681
8*	682	681	682	682	682	682	682	685	685	689	690	691	681	681	681
9*	685	684	683	682	682	682	682	682	684	685	685	691	697	696	691
10*	683	683	682	681	680	679	676	681	685	685	685	690	691	689	685
11	681	681	682	679	679	680	678	673	677	680	686	692	697	694	685
12	689	687	686	685	684	684	682	681	679	681	681	687	688	688	690
13	684	687	687	687	686	683	680	679	676	676	676	676	681	683	684
14	684	685	687	687	684	686	683	680	680	681	683	682	688	688	683
15	684	685	686	689	686	687	684	681	694	690	691	683	680	683	686
16	680	685	686	688	688	688	681	678	679	681	682	678	685	686	692
17	683	686	689	690	692	690	685	683	681	687	686	685	680	689	690
18*	685	687	688	689	689	689	688	688	692	697	699	703	701	696	693
19	684	684	685	686	686	686	689	691	690	689	684	684	690	691	687
20*	684	683	683	684	685	687	688	680	682	684	685	681	686	690	689
21	686	692	685	681	683	685	(686)	(687)	688	692	697	700	699	695	699
22	690	690	691	691	691	691	690	690	692	698	698	697	702	699	692
23	697	698	699	696	697	698	698	698	693	696	693	690	693	698	701
24	701	700	699	698	695	695	690	692	692	698	698	699	701	705	703
25*	695	694	693	690	689	690	691	693	694	697	699	701	702	702	703
26*	696	697	697	697	694	692	691	689	689	692	693	692	693	695	695
27	692	692	691	690	691	688	686	682	680	679	680	680	684	688	691
28	688	690	691	689	687	689	681	682	689	688	688	684	688	687	691
29	694	688	688	696	694	689	689	686	685	689	688	688	686	691	697
30	696	696	696	695	696	695	691	690	692	691	695	698	696	696	696
Mean....	687	687	687	688	687	687	686	685	685	686	686	687	689	691	691
Mean*....	686	686	686	686	686	686	686	686	686	687	688	689	689	690	690

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

MAY, 1909.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum			Minimum			Range	Day
<i>r</i>	<i>r</i>	<i>h</i>	<i>m</i>	<i>r</i>	<i>h</i>	<i>m</i>	<i>r</i>	<i>r</i>									
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
...	697	696	697	697	696	693	691	688	685	6	00	688	12	20	678	10	6
685	686	686	685	686	685	684	683	681	685	9	00	692	0	25	680	12	7
681	680	680	685	685	685	685	(685)	(685)	684	14	35	745	2	22	636	10	8
682	678	678	680	682	682	683	683	683	680	0	00	684	13	00	674	10	9
683	683	682	680	677	682	683	684	691	682	24	00	691	12	00	674	17	10
679	678	679	679	680	682	682	684	682	682	0	00	691	14	00	678	13	11
681	681	681	678	679	680	683	681	683	681	2	00	686	7	57	678	8	12
696	689	703	704	738	689	688	724	697	693	14	23	710	6	53	690	20	13
702	702	699	697	697	696	693	702	693	699	14	23	710	6	53	690	20	15
698	701	697	696	695	691	690	690	692	694	15	00	702	10	00	685	17	16
698	695	694	693	691	690	690	687	687	693	15	00	701	23	30	685	16	17
708	700	691	688	694	695	701	697	697	693	15	13	713	3	06	678	35	18
698	701	702	702	701	699	697	694	694	700	4	15	715	9	10	692	23	19
699	696	697	696	697	697	695	693	692	697	12	05	703	24	00	692	11	20
690	692	693	692	694	691	690	688	688	689	6	00	694	13	23	679	15	21
695	695	695	694	696	697	696	695	693	692	21	00	697	4	00	682	15	22
694	693	694	693	693	694	693	693	691	694	12	24	702	3	00	688	14	23
690	685	685	686	688	688	691	691	689	689	10	24	694	18	00	685	9	24
683	683	682	685	697	692	687	689	689	685	20	00	697	18	00	682	15	25
685	685	683	686	683	686	688	690	692	685	24	00	692	9	44	680	12	26
690	686	684	683	685	684	683	684	685	687	14	00	698	7	30	678	20	27
691	687	684	686	686	684	684	685	687	686	1	32	695	2	42	682	13	28
694	689	690	689	689	689	689	689	689	690	14	00	699	7	00	681	18	29
693	689	689	689	688	688	687	687	689	689	13	00	698	9	00	680	18	30
691	692	691	689	690	688	685	687	684	689	15	11	695	9	23	680	15	31
691	689	689	689	689	691	689	688	687	689	689	688					19	
689	687	687	687	687	688	688	687	687	688	687	688					13	

JUNE, 1909.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

693	689	687	686	684	686	684	683	683	685	14	00	695	9	31	669	26	1	
689	688	685	685	684	683	683	681	682	684	6	00	692	11	23	671	21	2	
691	691	689	686	686	684	683	682	682	686	15	00	692	8	26	677	15	3	
689	686	686	686	686	685	679	677	682	684	6	11	689	23	00	677	12	4	
691	688	689	687	687	684	683	683	683	684	16	00	691	11	37	673	18	5	
690	687	686	686	687	688	686	684	683	684	14	25	690	12	00	677	13	6	
682	679	679	682	683	683	682	682	682	682	14	00	685	17	10	677	8	7	
683	684	685	685	685	686	686	686	687	684	11	00	691	13	15	680	11	8	
688	682	681	682	683	684	684	684	684	686	13	00	697	18	00	681	16	9	
682	682	680	680	680	679	681	682	682	683	13	00	691	6	23	675	16	10	
684	682	682	681	681	683	681	683	680	684	12	45	698	8	06	672	26	11	
685	682	681	681	680	681	683	684	683	683	0	00	690	9	00	679	11	12	
682	681	677	675	676	677	682	682	684	681	15	31	687	19	19	674	13	13	
687	687	683	684	683	683	684	684	685	684	12	43	690	8	22	679	11	14	
689	689	688	687	684	683	682	681	685	686	9	00	694	7	31	677	17	15	
694	689	689	689	687	686	684	682	681	685	16	00	694	7	31	675	19	16	
692	691	688	688	688	688	684	680	681	686	15	36	694	23	14	678	16	17	
688	690	688	689	691	689	689	685	685	691	12	00	703	0	10	681	22	18	
691	690	691	691	691	689	687	686	684	688	16	00	691	11	25	680	11	19	
688	685	686	687	689	689	687	688	685	686	14	11	690	12	08	680	10	20	
697	690	690	695	695	695	692	693	691	691	15	05	704	4	00	681	23	21	
697	694	694	694	696	697	698	694	698	694	12	50	706	14	31	690	16	22	
700	699	695	698	695	695	695	696	696	696	15	31	702	12	00	690	12	23	
698	698	695	696	695	695	696	696	696	697	14	16	706	7	35	690	16	24	
700	697	694	693	694	694	694	695	694	695	14	48	705	5	00	689	16	25	
695	694	692	691	689	691	692	691	692	693	3	27	698	7	15	688	10	26	
690	688	686	686	686	686	684	690	688	687	15	33	692	11	00	679	13	27	
690	686	686	685	688	688	680	668	690	691	686	3	14	694	21	56	668	26	28
698	697	695	693	690	694	687	692	692	691	15	47	699	8	45	680	19	29	
700	699	697	694	690	688	688	688	687	694	16	00	700	24	00	687	13	30	
691	689	687	687	687	687	687	686	686	687	687	687					16		
690	688	687	687	687	687	687	686	685	686	687	687					15		

JULY, 1909.

3350 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	686	689	688	690	690	691	681	680	681	682	686	690	689	692	694
2	686	685	687	689	686	689	692	686	684	693	694	696	697	699	698
3	688	693	689	686	690	688	690	692	686	684	682	684	687	687	687
4	688	690	687	690	690	691	691	694	696	695	694	689	686	685	686
5	687	688	688	690	691	693	690	689	685	683	684	688	690	694	695
6*	692	691	689	691	692	694	695	696	694	694	692	693	694	694	691
7*	694	692	691	691	691	692	692	693	691	692	691	691	690	689	689
8	687	688	687	682	684	689	685	686	689	689	688	689	689	694	690
9	689	689	688	687	687	688	687	685	688	692	690	692	698	700	696
10*	693	693	692	690	689	688	686	684	685	684	687	695	703	704	699
11*	693	692	691	690	690	688	684	684	687	688	689	690	690	685	692
12	687	689	695	688	687	687	687	686	690	695	702	707	700	698	699
13	692	703	692	692	690	688	682	678	686	688	686	691	693	694	694
14	688	691	691	691	690	687	682	680	682	681	677	685	690	693	697
15	681	687	690	695	695	692	685	688	690	692	693	693	695	702	705
16*	688	690	692	692	692	692	689	686	688	689	691	693	693	701	703
17*	689	689	690	691	691	691	686	685	685	682	678	675	679	681	685
18*	685	686	687	689	692	690	689	686	685	685	688	689	691	691	691
19*	684	683	684	684	686	688	688	692	694	697	699	694	692	689	689
20*	687	687	684	690	690	689	686	684	687	687	690	686	684	684	689
21	685	685	686	685	685	684	682	681	678	683	682	685	683	683	685
22	689	685	687	685	688	689	686	688	683	692	693	688	683	680	693
23	689	692	691	701	689	689	689	686	688	690	692	686	685	681	685
24	689	688	693	692	691	691	686	679	681	681	679	675	678	687	692
25	691	686	687	687	686	686	680	677	678	681	686	690	689	691	688
26	687	687	683	685	690	688	687	682	682	682	686	690	692	691	690
27	689	689	691	689	685	686	682	681	684	689	686	686	685	683	681
28	688	688	686	687	685	684	679	677	680	684	681	683	685	690	685
29	685	685	690	685	683	683	678	668	673	673	675	678	685	681	687
30	688	683	684	686	685	683	677	672	673	675	677	677	679	687	688
31*	683	684	684	687	687	683	679	674	679	677	681	685	683	681	683
Mean....	688	689	689	689	689	688	686	684	685	686	687	688	689	690	691
Mean*....	689	689	688	690	690	690	687	686	688	688	689	689	690	690	691

AUGUST, 1909.

3350 $\gamma$  PLUS TABULAR QUANTITIES.

1	680	683	683	685	687	684	679	674	676	684	687	688	687	684	685
2	691	682	685	685	690	690	685	685	685	689	693	693	699	688	691
3	685	686	686	690	691	692	685	677	677	683	683	686	687	687	686
4	687	685	685	687	686	687	686	687	688	688	689	686	683	686	689
5*	692	691	691	691	697	693	693	692	692	694	692	696	696	699	699
6*	696	692	693	691	691	691	688	685	683	683	686	686	686	686	686
7	691	695	694	690	687	683	678	684	689	688	693	689	686	695	693
8	695	693	692	688	687	686	680	681	686	689	692	693	696	697	690
9	685	692	692	689	696	694	693	693	695	697	697	699	706	705	
10	697	696	692	694	693	689	679	683	692	698	701	698	695	697	697
11	691	693	691	692	691	686	679	675	678	680	685	689	692	692	694
12	693	693	691	691	690	687	681	682	688	691	691	691	692	691	691
13*	687	691	691	691	691	688	681	685	690	689	689	690	689	692	696
14*	691	693	693	693	692	691	687	687	692	692	687	683	683	686	688
15*	693	692	693	693	693	694	690	690	691	689	692	694	693	693	692
16*	686	687	687	688	687	687	683	683	686	687	691	690	691	692	693
17*	683	685	685	685	684	684	679	683	692	698	695	695	695	695	
18	688	689	688	689	689	689	680	676	675	693	697	694	697	695	692
19	682	691	691	691	692	691	685	686	687	689	689	684	682	687	686
20	679	688	683	682	684	682	682	678	681	682	683	689	693	698	695
21*	693	693	690	689	688	689	684	682	681	680	681	687	688	690	691
22	685	688	684	684	688	685	681	678	684	688	689	689	689	692	691
23*	696	695	695	692	691	691	684	680	680	685	685	687	688	689	690
24*	695	695	695	696	691	691	686	682	685	688	691	692	696	695	693
25	695	694	697	697	696	694	685	689	693	694	694	693	693	699	700
26	698	704	700	698	699	699	692	690	696	699	703	706	707	705	701
27	701	702	700	701	701	700	693	689	690	691	695	698	701	702	
28	694	694	693	694	694	692	687	685	686	690	692	696	698	696	694
29	691	698	689	690	696	691	690	691	696	697	693	694	695	703	
30	701	694	693	696	698	698	692	690	693	694	697	694	694	699	702
31	701	701	699	698	697	699	691	686	691	690	690	687	690	691	695
Mean....	691	692	691	691	692	690	686	684	687	689	691	692	692	694	
Mean*....	691	691	691	691	691	691	690	686	685	687	688	689	690	692	692

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

75

JULY, 1909.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
695	689	689	689	686	685	684	681	684	687	14 39	696	8 18	678	18 1
694	693	691	693	690	690	689	689	691	691	14 00	699	8 53	683	16 2
688	692	693	694	695	693	693	692	692	689	18 28	696	11 23	681	15 3
692	689	691	693	693	692	692	690	688	690	9 00	696	14 00	685	11 4
693	695	695	695	696	696	695	695	693	691	14 16	696	10 27	679	17 5
691	693	694	694	696	696	696	696	695	693	9 39	696	3 00	689	7 6
687	686	686	688	687	689	686	687	687	690	0 00	695	17 26	685	10 7
689	685	688	686	689	689	688	686	686	688	14 08	695	4 09	680	15 8
697	695	692	693	693	694	694	695	695	692	14 00	700	8 00	685	15 9
697	689	688	688	689	690	690	690	691	691	13 35	705	8 28	683	22 10
690	686	689	688	681	684	684	686	686	688	15 14	694	20 15	677	17 11
692	696	688	688	690	687	693	688	695	692	12 00	707	0 21	685	22 12
692	695	691	690	688	687	684	686	687	690	2 00	703	7 16	677	26 13
693	693	692	691	691	693	686	687	690	688	14 30	699	11 00	677	22 14
702	699	694	695	693	691	689	689	691	693	14 56	705	1 00	681	24 15
701	698	695	695	693	692	690	689	690	693	14 36	705	8 00	686	19 16
686	691	690	690	690	689	688	687	687	686	5 13	692	12 12	674	18 17
694	692	689	692	691	690	689	686	686	689	16 00	694	1 00	685	9 18
693	690	689	690	690	689	689	688	689	690	11 00	699	2 00	683	16 19
690	688	690	690	690	690	690	690	689	688	15 30	693	13 38	682	11 20
683	685	685	686	691	693	691	691	687	685	21 00	693	8 34	674	19 21
690	689	689	689	690	684	683	687	691	688	11 00	693	14 00	680	13 22
688	688	686	686	681	684	686	683	684	687	3 50	702	14 19	679	23 23
690	688	686	685	688	689	692	692	687	687	3 17	697	12 44	674	23 24
684	682	680	682	684	686	687	688	688	685	0 36	697	8 06	675	22 25
690	688	687	686	687	687	688	688	690	687	13 00	692	8 00	682	10 26
685	689	686	685	686	685	686	688	689	688	2 53	691	13 45	680	11 27
688	685	685	685	684	684	672	683	683	684	13 55	692	21 36	667	25 28
684	685	685	685	685	683	683	683	684	682	0 22	692	8 11	664	28 29
684	687	688	688	688	685	684	683	684	683	14 24	689	7 51	670	19 30
691	691	689	690	687	684	681	678	681	683	16 18	693	8 00	674	19 31
691	690	689	689	689	689	689	688	688	688					17
692	690	690	690	689	689	689	688	688	689					15

AUGUST, 1909.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

685	687	691	693	692	688	688	688	689	685	19 00	693	8 00	674	19 1
691	689	694	695	692	683	694	698	691	690	13 00	699	20 41	679	20 2
686	688	691	691	692	689	685	691	690	687	5 45	697	7 34	675	22 3
689	689	693	693	694	695	697	697	693	689	23 00	697	13 00	683	14 4
697	698	697	697	697	697	698	697	697	695	14 00	699	7 37	691	8 5
687	690	688	690	691	693	694	694	693	689	0 00	697	9 00	683	14 6
690	686	689	692	694	695	696	697	697	690	1 28	701	6 44	676	25 7
687	685	683	686	690	690	677	678	678	687	14 00	697	23 30	670	27 8
698	695	694	693	695	694	697	695	697	695	14 12	707	0 00	678	29 9
697	699	696	693	695	694	691	697	686	694	11 00	701	7 29	677	24 10
695	695	693	693	692	692	691	691	689	689	16 00	695	7 56	672	23 11
696	695	697	694	692	688	687	684	684	690	18 00	697	7 38	676	21 12
696	695	696	693	694	695	694	691	692	691	15 00	696	7 01	680	16 13
691	693	694	696	697	696	694	693	693	691	20 00	697	7 17	681	16 14
693	694	694	694	693	692	690	688	688	692	16 20	695	7 44	688	7 15
689	693	693	695	694	692	690	690	690	690	19 21	696	7 42	681	15 16
695	697	698	697	696	693	691	691	690	691	10 00	698	7 05	679	19 17
693	695	695	695	688	697	699	698	698	691	21 46	700	7 21	672	28 18
685	690	691	690	689	691	690	689	686	688	0 00	698	0 58	682	16 19
694	695	692	696	696	696	695	695	694	689	14 00	698	8 00	678	20 20
689	689	689	691	690	689	689	686	687	688	0 00	694	8 34	679	15 21
690	690	692	690	688	692	694	696	696	688	23 46	699	7 56	678	21 22
690	691	692	692	693	695	696	696	694	690	22 00	696	8 00	680	16 23
688	691	690	691	693	696	692	696	696	692	24 00	696	8 00	682	14 24
700	699	696	696	698	698	694	696	698	695	15 30	703	7 34	684	19 25
702	703	702	695	701	702	703	695	696	700	13 19	709	8 21	683	26 26
697	698	700	699	696	698	695	698	695	698	3 27	708	8 00	689	19 27
694	697	691	677	689	694	691	687	687	692	16 47	700	19 00	677	23 28
705	702	704	702	703	701	700	693	699	697	15 20	707	7 23	685	22 29
694	701	706	701	699	702	694	691	699	697	0 28	707	9 29	686	21 30
699	704	704	705	703	694	694	695	693	696	19 00	705	7 41	685	20 31
693	694	694	694	694	694	693	693	692	692					19
692	693	693	694	694	694	694	692	692	691					14

SEPTEMBER, 1909.

33500<sub>7</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	690	692	703	694	696	696	690	676	678	678	677	680	678	679	683
2	688	688	689	692	692	692	679	678	682	678	675	676	677	681	682
3	691	692	683	686	689	695	693	693	691	692	687	683	682	690	693
4	697	693	699	695	692	691	693	692	687	694	691	685	682	689	689
5	699	695	696	695	697	695	689	691	693	694	693	691	695	696	695
6	698	697	695	695	694	693	688	687	685	685	682	685	687	691	692
7	692	696	693	694	692	691	689	687	685	685	689	686	684	687	693
8	692	695	693	688	689	691	683	682	681	687	686	689	694	692	691
9	690	690	691	692	692	688	(686)	(684)	681	685	685	686	687	690	692
10*	687	688	690	691	691	691	684	679	683	685	690	695	694	696	691
11*	690	691	692	693	694	694	687	687	687	687	690	690	690	691	691
12*	691	692	693	694	695	693	690	688	688	688	690	694	695	693	691
13*	690	691	692	694	695	694	688	683	680	678	681	685	689	691	692
14	693	693	693	690	691	694	689	684	685	686	686	688	689	690	690
15	696	688	691	696	698	698	693	687	683	684	687	692	694	696	694
16*	693	696	693	694	695	697	690	692	693	693	691	693	695	697	700
17*	698	698	701	703	703	700	699	696	693	697	698	700	700	697	697
18*	698	698	698	699	700	699	699	698	695	693	695	696	695	696	695
19*	695	695	695	694	695	695	693	693	692	692	695	696	694	692	690
20*	698	698	697	696	695	696	694	693	693	694	697	693	687	688	690
21	695	695	696	695	695	695	700	688	688	685	692	694	695	698	705
22	712	709	706	704	702	701	698	694	692	693	694	697	699	703	702
23	702	701	699	701	697	698	693	691	693	696	694	696	700	700	700
24*	704	703	703	700	699	698	691	695	696	698	699	700	702	705	705
25	700	703	702	702	706	698	690	591†	574†	754	718	638	750	778	686
Mean....	698	699	699	698	699	699	694	688	687	693	693	692	696	698	695
Mean*....	694	695	695	696	696	696	692	691	690	690	692	694	694	695	694

OCTOBER, 1909.

33500<sub>7</sub> PLUS TABULAR QUANTITIES.

1	712	714	716	717	721	721	716	716	719	716	715	713	711	711	712
2	718	714	730	704	714	717	712	712	711	719	726	720	714	722	714
3	721	721	721	723	723	721	722	720	721	720	716	717	715	715	712
4	716	717	714	717	713	712	710	714	708	712	709	705	701	702	702
5*	711	709	708	708	708	708	710	710	710	709	711	711	710	713	714
6	712	713	712	710	709	707	706	705	704	704	704	703	701	699	697
7	705	704	706	705	704	704	701	697	694	688	691	691	694	697	696
8	697	713	719	711	713	713	709	702	705	702	702	706	693	696	699
9	714	713	716	713	(713)	(713)	(711)	(709)	705	708	707	706	705	704	708
10*	709	711	711	712	712	710	708	699	699	701	705	703	701	706	706
11*	706	707	707	709	708	705	706	706	704	704	704	703	701	708	710
12	707	709	710	711	710	710	704	702	699	709	709	704	704	702	698
13	699	700	703	705	706	705	698	692	689	691	693	698	701	700	699
14*	702	702	703	705	705	707	705	704	700	698	697	698	696	698	699
15*	701	702	701	701	702	704	702	699	694	693	693	691	693	697	691
16*	695	697	696	697	698	699	697	696	689	688	687	688	688	688	691
17*	700	699	701	701	700	700	697	692	691	690	695	689	689	693	695
18	702	712	704	699	698	699	696	699	704	707	708	703	702	703	703
19	736	731	746	742	756	732	728	731	728	722	721	724	725	723	728
20	725	721	724	724	723	723	726	722	714	719	717	714	713	710	711
21	721	722	722	721	721	720	715	712	709	708	705	705	701	708	709
22	720	719	721	721	722	722	720	719	718	716	718	718	715	712	714
23	723	722	722	723	722	725	718	708	715	710	708	708	718	725	735
24	724	727	727	726	---	---	---	---	---	713	710	720	720	727	727
25	---	---	---	---	---	---	---	---	---	719	717	714	713	710	711
26	716	717	718	719	718	716	713	710	711	711	711	710	713	714	714
27*	711	714	716	718	720	719	712	704	704	703	705	706	704	704	707
28*	707	710	712	714	715	716	714	706	703	700	697	697	698	698	704
29	709	710	710	712	713	715	714	709	705	701	700	700	700	701	705
30*	705	707	708	711	712	713	710	704	698	699	700	703	703	703	705
31	705	703	704	706	707	706	704	703	701	699	700	700	700	702	702
Mean....	711	711	713	712	713	712	710	707	705	705	705	705	704	705	706
Mean*....	705	706	706	708	708	708	706	702	699	698	699	700	699	699	702

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

†Estimated: curve was off the paper from 7:52 to 9:07.

## HOURLY VALUES OF VERTICAL INTENSITY.

SEPTEMBER, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day
684	690	693	695	694	697	696	695	691	689	h m	h m	h m	1
684	688	691	689	697	699	698	699	694	687	3 12	7 50	673	2
691	691	691	688	689	692	706	709	707	692	22 15	10 57	674	3
693	694	693	695	696	700	700	701	701	693	23 08	7 11	678	4
693	696	693	693	693	692	694	699	694	694	0 00	707	13 15	682
										22 24	7 40	684	5
694	695	692	694	694	698	695	695	692	692	0 22	703	10 51	681
689	687	687	686	690	687	690	693	689	689	1 41	699	13 23	682
689	688	691	682	682	685	691	685	689	688	2 39	696	8 37	679
690	692	691	690	690	689	687	690	687	689	1 21	695	8 55	680
688	690	691	690	691	689	689	689	689	689	12 42	697	8 05	677
										697	8 05	677	10
694	695	692	691	691	690	689	691	691	691	17 00	695	7 36	686
689	690	689	691	689	689	689	690	691	691	13 00	695	8 00	688
692	693	695	693	692	692	693	693	690	690	5 44	695	10 00	678
690	694	696	691	692	697	697	697	693	691	21 00	697	8 29	683
694	696	695	696	697	697	696	694	694	693	6 00	698	9 00	683
										698	9 00	683	15
698	698	700	702	703	704	703	702	701	697	21 00	704	7 00	690
696	698	701	701	702	701	701	700	699	699	6 00	703	10 00	693
695	693	695	695	697	698	698	696	696	696	5 48	700	9 47	692
688	691	697	697	699	699	699	699	695	695	23 00	699	15 36	688
688	691	695	694	693	692	695	698	701	694	24 00	701	16 18	686
										701	16 18	686	20
695	696	698	691	708	699	705	706	716	697	24 00	716	9 20	678
700	702	703	702	701	702	703	702	702	701	0 00	716	8 54	692
700	703	703	700	700	699	700	700	698	698	3 18	707	8 33	690
703	703	702	701	702	699	700	700	701	700	14 17	706	7 00	691
752	727	738	737	732	737	739	736	735	709	14 14	808	9 00	574†
										709	12 17	769	25
718	717	722	722	716	719	716	716	712	720	1 00	736	11 05	708
720	721	723	720	717	715	713	711	711	714	18 00	723	10 00	704
716	716	718	712	714	711	709	707	705	711	2 33	720	8 55	699
706	711	715	715	713	713	710	706	709	707	18 26	717	13 45	698
698	718	720	719	723	724	720	721	717	708	12 17	769	9 26	683
										708	9 00	683	30
698	699	700	699	700	700	701	700	700	697				28
693	694	696	696	696	696	696	696	696	694				13

OCTOBER, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

714	717	720	721	721	724	721	718	716	717	21 00	724	13 21	707	1
717	718	721	723	727	727	726	724	723	719	3 00	730	8 38	702	2
707	708	712	712	721	722	722	719	718	718	4 24	724	16 21	703	3
703	703	706	705	708	709	711	712	710	709	1 41	720	13 29	701	4
710	711	712	711	710	711	712	711	712	710	14 31	714	4 00	708	5
										710			6	
698	698	702	702	701	704	704	704	704	704	2 00	713	15 00	697	6
697	700	703	701	702	697	694	695	699	699	2 44	708	10 00	688	7
700	703	704	701	697	695	704	713	716	705	3 20	720	13 15	689	8
711	712	712	711	708	707	706	707	709	710	3 40	717	13 30	702	9
709	709	709	707	707	706	705	705	705	706	3 22	713	9 00	699	10
										706			14	
706	705	711	710	711	710	707	707	707	707	18 00	711	6 35	702	11
700	702	703	704	703	701	700	699	699	704	4 00	711	15 00	698	12
700	702	704	702	703	699	697	703	701	700	5 25	706	9 00	689	13
699	700	702	705	706	704	702	701	701	702	6 00	707	13 42	695	14
691	694	698	697	698	697	698	694	694	697	6 00	704	9 21	688	15
										697			16	
697	699	702	702	703	701	699	700	701	696	20 00	703	11 00	687	16
695	699	705	706	705	705	703	702	702	698	19 23	707	10 27	688	17
696	698	707	713	710	705	722	707	710	704	21 48	735	15 21	688	18
726	724	718	727	728	730	728	726	734	730	4 48	759	0 00	710	19
712	713	714	716	716	716	720	720	720	718	0 11	737	14 00	710	20
										718			27	
710	712	712	713	715	718	718	721	722	714	24 00	722	13 07	701	21
715	717	718	716	717	710	710	703	703	716	6 29	722	23 26	699	22
728	731	725	726	724	724	724	722	721	721	15 00	735	11 21	702	23
722	...	...	...	...	...	...	...	...	...	...	...	...	...	24
...	...	...	...	...	...	715	714	714	714	...	...	...	...	25
715	719	716	714	711	710	707	708	710	713	3 42	721	22 00	707	14
710	714	716	713	713	710	707	706	707	710	4 56	720	10 00	703	17
708	714	714	714	714	712	710	707	708	708	6 31	717	13 37	696	21
702	709	709	710	708	711	710	708	706	707	6 00	715	11 24	699	28
703	704	705	708	708	708	707	707	708	706	6 00	713	9 06	698	30
703	704	706	706	707	707	708	706	707	704	0 00	708	13 00	700	8
	706	708	710	710	710	710	710	709	709				20	
703	705	707	707	708	706	705	704	704	704				14	

† Probably less than this; curve was off the paper from 7:52 to 9:07.

## PORTO RICO MAGNETIC OBSERVATORY.

NOVEMBER, 1909.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	714	712	709	713	708	708	708	707	702	697	694	691	689	692	700
2	707	707	705	705	705	707	707	706	702	701	701	701	699	705	708
3*	709	708	708	706	702	704	702	696	692	691	692	698	699	702	704
4*	708	708	704	706	705	702	700	693	689	690	695	697	700	705	707
5*	708	707	707	706	706	705	702	693	693	690	690	691	693	697	701
6	707	707	707	707	705	704	701	696	693	690	688	691	696	703	706
7	706	710	709	708	707	707	702	697	696	697	699	704	705	704	704
8	705	707	709	706	710	707	706	703	701	706	700	701	700	701	701
9*	704	704	705	705	704	704	702	699	699	697	699	700	699	703	704
10*	704	705	705	707	706	704	703	699	695	691	688	691	695	699	701
11*	704	705	707	708	708	708	706	703	699	695	689	690	694	693	698
12*	705	705	705	709	710	709	708	704	700	698	698	698	699	703	704
13*	704	704	705	710	710	710	705	699	695	694	692	694	699	698	699
14	705	704	704	703	707	709	710	709	710	707	703	701	701	698	702
15	702	696	703	706	713	707	708	705	697	695	690	689	690	688	689
16	698	700	699	698	697	697	699	697	694	692	692	691	692	692	692
17	702	703	700	701	702	703	705	699	697	693	692	693	694	694	693
18	705	705	704	704	704	700	706	700	694	691	693	695	694	695	700
19	705	705	702	701	700	700	698	692	689	691	693	697	700	700	700
20	703	702	703	700	704	706	706	700	699	701	695	704	707	701	700
21	711	710	707	707	705	705	705	700	699	694	698	699	700	699	702
22	707	707	710	706	706	706	703	702	699	696	694	694	697	705	705
23	709	710	710	710	708	709	703	700	692	689	688	686	688	695	699
24*	707	708	708	709	712	708	707	702	697	697	696	699	700	704	708
25*	708	711	711	711	710	709	708	701	698	695	698	697	697	699	703
26	704	705	708	709	710	710	708	706	702	698	697	696	697	699	699
27	703	699	697	699	697	702	707	699	695	688	685	682	681	680	691
28	701	701	703	704	706	706	707	705	696	691	687	683	685	685	687
29	694	694	696	699	698	699	699	697	690	687	682	680	685	695	694
30	705	700	705	709	718	710	706	705	705	701	705	704	709	711	716
Mean....	705	705	705	706	706	706	705	701	697	695	694	695	696	698	701
Mean*....	706	706	706	708	707	706	704	699	696	694	694	696	698	700	703

DECEMBER, 1909.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	721	718	713	715	721	715	713	725	715	708	706	707	702	701	705
2	722	721	716	724	714	714	713	702	704	703	702	704	707	707	710
3	717	717	720	716	712	711	(711)	(711)	710	707	710	708	706	705	710
4	716	718	715	719	713	715	715	710	708	703	706	715	718	716	712
5	715	715	712	712	711	711	710	705	700	697	695	698	697	698	701
6	707	708	708	708	705	705	708	704	696	699	700	698	697	700	704
7	700	700	700	699	699	699	699	693	688	688	685	688	693	700	702
8*	704	705	705	705	705	706	707	705	699	698	695	694	695	700	708
9*	704	705	705	705	705	704	705	703	699	698	697	696	695	700	708
10*	704	705	705	705	705	704	704	705	699	690	688	692	699	703	705
11*	705	705	709	710	710	710	710	705	703	698	698	695	697	696	701
12*	766	708	708	709	709	709	709	706	701	699	698	696	698	700	703
13	705	707	708	709	709	709	709	703	692	687	684	682	692	699	710
14	710	705	709	702	707	709	711	709	698	700	702	702	703	709	704
15	716	722	714	717	713	716	718	713	708	706	701	701	701	702	707
16	712	711	709	706	705	706	710	708	702	700	697	696	700	702	702
17	711	710	706	710	706	711	711	706	702	698	699	697	694	695	695
18	707	705	705	705	705	705	706	704	700	698	696	694	694	699	701
19	711	710	710	709	705	704	704	704	701	698	698	703	702	701	703
20	708	708	708	708	704	703	707	706	705	702	702	700	703	702	706
21	708	708	707	708	707	706	704	702	701	698	698	699	702	714	715
22	718	719	719	718	715	711	713	708	707	709	713	714	711	708	712
23	718	714	713	713	713	710	710	706	705	700	699	697	706	707	707
24*	712	713	713	714	713	712	710	707	701	696	694	694	691	697	700
25*	707	706	708	712	712	712	710	707	707	695	694	692	690	697	701
26*	703	703	705	705	709	708	706	702	702	695	692	687	692	695	702
27*	710	710	711	713	714	716	712	709	701	694	689	687	688	688	693
28*	704	706	707	709	710	712	711	708	703	697	698	697	688	689	694
29	708	709	708	709	709	709	711	709	707	704	700	697	696	693	694
30	706	706	706	705	705	707	710	707	702	698	697	699	698	694	700
31	706	704	704	704	704	704	707	708	708	698	699	698	690	696	691
Mean....	710	710	709	710	709	709	708	707	702	699	698	698	698	700	703
Mean*....	706	706	707	708	708	709	708	704	698	695	693	692	693	696	701

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

79

NOVEMBER, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day		
700	702	704	707	707	707	707	707	708	704	714	13 00	689	25	1	
708	707	708	709	709	709	710	710	709	706	712	12 36	698	14	2	
704	704	703	702	702	703	704	706	708	702	709	10 00	691	18	3	
707	707	705	704	703	706	707	707	707	703	708	9 00	689	19	4	
702	702	702	701	699	700	702	703	706	700	708	10 00	690	18	5	
700	702	702	701	701	702	700	698	703	700	707	11 39	686	21	6	
704	704	705	697	701	701	702	702	706	703	710	8 40	695	15	7	
704	707	706	704	704	702	702	704	704	704	710	10 00	700	10	8	
704	704	704	704	699	699	704	704	703	702	705	10 00	697	8	9	
705	710	709	705	705	703	701	701	702	701	710	11 00	688	22	10	
703	704	704	709	710	709	706	704	705	703	710	11 33	687	23	11	
705	710	710	710	708	705	704	704	705	705	710	12 00	698	12	12	
704	711	711	710	710	709	708	705	707	704	711	11 00	692	19	13	
702	702	697	701	701	702	703	700	698	703	712	14 00	698	14	14	
698	701	701	704	704	701	700	703	701	700	716	14 53	687	29	15	
695	702	698	703	706	705	704	703	703	698	707	12 40	689	18	16	
694	700	700	702	702	704	707	705	705	700	707	11 00	692	15	17	
699	699	701	702	702	704	707	706	706	700	709	10 00	691	18	18	
700	700	698	699	700	701	701	703	706	699	710	9 00	689	21	19	
702	700	702	707	703	702	710	711	711	703	723	0 00	711	11 00	695	16
703	704	700	701	700	701	706	706	708	703	713	0 25	693	20	21	
704	708	708	706	706	705	704	702	708	704	710	11 36	690	20	22	
704	704	704	702	699	703	703	703	707	701	709	12 00	688	23	23	
710	711	709	709	707	705	705	705	705	705	712	11 00	696	16	24	
704	709	709	709	706	704	704	703	705	705	712	10 00	695	17	25	
702	704	704	704	706	702	699	697	696	703	712	12 35	695	17	26	
697	701	702	702	703	701	702	701	700	696	708	13 49	680	28	27	
692	696	699	700	700	699	699	696	696	697	707	12 00	683	24	28	
698	701	704	709	708	707	701	703	700	697	709	12 00	680	29	29	
715	716	722	706	726	723	722	721	719	712	726	1 32	697	29	30	
702	704	704	704	704	704	704	704	705	702				29		
703	707	707	706	705	704	704	704	705	703				17		

DECEMBER, 1909.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

707	708	703	690	718	722	742	727	726	714	21 57	745	18 52	689	56	1
713	713	711	712	712	716	718	719	718	712	4 03	725	8 00	702	23	2
707	709	709	710	713	714	716	716	718	712	3 00	720	14 00	705	15	3
710	713	713	713	713	714	714	713	716	713	4 00	719	10 00	703	16	4
704	706	704	705	706	706	706	706	705	705	0 00	716	11 00	695	21	
704	695	695	696	696	695	696	698	698	698	3 37	712	9 36	695	17	6
704	704	701	700	700	699	699	700	703	698	17 00	704	11 27	685	19	8
709	709	707	705	704	703	701	702	704	703	17 00	709	12 00	694	15	9
706	708	706	706	706	706	705	705	706	703	17 00	708	11 00	688	20	10
706	706	707	708	707	707	706	707	706	705	4 00	710	12 00	695	15	11
705	706	706	705	705	705	704	705	706	704	5 00	709	12 00	696	13	12
710	709	708	708	706	706	704	707	708	703	4 22	714	11 30	681	33	13
710	713	712	709	718	714	716	718	718	709	20 12	720	11 37	697	23	14
706	707	708	708	713	713	713	708	715	710	2 04	722	13 00	701	21	15
702	705	706	708	713	712	713	713	706	706	0 36	716	11 44	696	20	16
695	696	702	705	707	711	707	710	707	704	0 00	713	13 42	690	23	17
704	706	704	706	707	709	710	706	706	703	22 51	711	13 39	693	18	18
708	708	705	705	705	709	709	709	705	705	1 00	711	10 00	698	13	19
707	703	705	708	705	704	707	709	709	705	7 45	709	13 43	698	11	20
718	710	708	704	709	709	714	715	719	708	15 30	720	10 47	696	24	21
716	715	711	711	710	710	710	714	713	712	2 12	720	13 51	705	15	22
714	709	708	708	708	708	707	707	708	708	1 00	718	10 32	696	22	23
701	702	705	706	705	702	701	702	702	704	4 00	714	13 00	691	23	24
703	704	703	701	701	700	699	699	699	702	4 20	713	12 00	690	23	25
704	706	709	705	710	711	710	708	708	703	5 05	709	11 00	687	22	26
699	702	703	703	704	704	707	707	705	703	6 00	716	11 48	686	30	27
699	703	707	710	711	712	711	710	710	704	6 00	712	13 26	687	25	28
697	702	705	706	706	707	707	707	707	704	7 00	711	14 19	690	21	29
701	700	702	706	716	710	707	707	707	704	20 00	716	14 00	694	22	30
692	697	700	699	703	713	708	706	708	702	21 00	713	13 00	690	23	31
705	706	706	705	705	705	704	704	705	703					21	
704	705	705	705	705	705	704	704	705	703					20	

JANUARY, 1910.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	709	711	709	707	707	707	706	706	705	693	690	689	689	695	695
2*	710	710	708	708	707	707	708	708	703	697	693	698	701	697	699
3	709	708	707	707	706	704	704	705	702	695	689	693	691	693	694
4	707	707	708	705	705	705	704	699	695	697	695	701	704	704	704
5	709	708	707	705	705	704	704	702	704	698	692	686	689	699	699
6*	711	712	711	712	711	710	710	709	704	699	698	698	699	699	704
7*	714	714	712	714	713	710	708	703	702	701	694	698	708	712	713
8*	711	713	714	711	713	709	709	707	699	692	689	689	692	699	703
9	708	710	713	712	713	713	712	710	702	695	695	692	701	702	703
10*	708	708	710	712	712	712	712	709	704	695	696	697	698	700	698
11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12	706	706	706	706	707	712	711	709	704	695	689	688	689	690	696
13	706	709	708	709	710	711	712	714	710	705	700	687	694	700	701
14	713	708	608	708	708	708	712	713	712	707	704	701	702	701	700
15*	712	711	711	711	712	712	711	711	708	711	711	711	710	711	712
16*	713	712	712	712	712	712	712	711	709	705	700	696	696	697	702
17	714	712	711	710	708	710	711	704	715	705	706	708	704	689	693
18	719	717	716	716	717	713	713	710	706	701	699	700	701	702	710
19	718	721	716	715	714	715	713	709	706	704	699	702	704	706	710
20*	714	714	713	713	713	709	708	704	697	692	687	686	687	691	698
21	714	715	715	715	714	710	710	707	703	698	697	697	708	709	714
22	719	720	720	719	716	716	714	708	703	699	693	698	709	715	711
23	720	721	722	720	720	720	722	715	709	701	698	698	703	709	712
24	717	722	726	728	727	727	727	726	726	720	715	709	703	712	714
25	715	717	709	712	711	725	718	718	704	700	698	705	706	716	716
26	722	718	723	722	723	728	728	728	716	709	702	699	704	710	709
27	720	720	716	720	720	720	719	719	709	707	705	702	702	708	714
28	712	713	712	714	716	718	722	723	718	711	706	701	707	712	713
29*	719	719	719	719	719	720	724	721	714	708	709	708	712	707	712
30*	722	721	721	721	721	721	722	722	721	717	715	710	716	715	715
31	717	715	715	715	715	715	714	716	712	708	711	714	715	714	714
Mean.....	714	714	713	713	713	713	713	712	707	702	699	698	702	704	706
Mean*....	713	713	713	713	713	712	712	710	706	702	699	699	702	703	706

FEBRUARY, 1910.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

1*	724	723	720	718	718	717	718	716	710	704	700	700	701	705	708
2	718	716	714	715	715	716	716	714	709	702	705	706	712	714	712
3	716	716	715	714	709	704	711	707	697	695	690	683	689	690	697
4	709	710	708	708	711	708	713	712	707	709	708	709	707	700	705
5	714	714	714	715	715	717	716	713	707	702	703	703	714	718	717
6*	717	717	717	717	716	715	715	711	705	700	701	705	710	717	718
7	716	717	718	718	718	718	717	712	707	701	700	701	702	704	705
8*	707	707	711	711	711	711	711	707	703	698	699	702	703	704	707
9*	706	706	710	711	711	711	711	705	699	698	699	700	694	689	692
10*	707	707	709	712	712	713	713	707	704	701	701	702	702	705	708
11*	708	708	708	707	711	712	712	704	697	694	700	702	707	707	707
12*	707	706	706	706	705	707	707	705	700	700	701	708	706	703	704
13*	706	705	705	706	707	708	708	706	702	701	700	701	700	702	703
14	706	706	706	706	706	707	711	705	705	698	700	700	699	701	701
15	710	706	706	700	699	699	699	695	687	687	687	693	694	693	694
16	707	710	706	705	699	701	703	702	699	695	697	699	698	699	699
17	712	711	710	710	709	706	706	704	699	699	700	699	700	693	706
18*	716	716	715	715	715	713	715	714	710	709	709	710	706	704	710
19*	714	714	715	714	714	713	713	711	707	703	703	714	713	710	710
20	715	713	715	715	715	721	721	714	711	694	695	709	708	708	709
21	715	716	716	726	714	712	715	710	705	702	(703)	704	706	710	715
22	(716)	(716)	(716)	716	716	716	715	714	709	709	708	708	709	702	704
23	714	717	720	719	720	720	719	714	710	709	(710)	(711)	(712)	(712)	(713)
24	715	717	717	717	717	722	716	712	(709)	704	694	697	699	703	703
25	715	715	715	717	719	714	716	714	(710)	(708)	(710)	(711)	(713)	(715)	(715)
26	717	717	718	722	721	720	722	723	722	721	716	713	706	709	709
27	(716)	(717)	(719)	(720)	(721)	(722)	(721)	(719)	715	711	710	708	700	699	696
28	716	716	717	717	719	717	718	716	717	715	710	707	705	710	710
Mean.....	713	713	713	714	713	713	713	710	706	703	702	704	704	704	706
Mean*....	711	711	712	712	712	712	712	709	704	701	701	704	704	705	707

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

81

JANUARY, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
701	705	703	707	708	709	708	711	712	703	1 26	712	12 31	687 25	1
703	703	702	703	703	704	708	708	709	704	0 00	712	11 00	693 19	2
696	696	699	699	700	701	701	706	703	700	1 00	709	11 48	686 23	3
704	704	704	704	705	705	706	707	708	704	2 36	709	9 24	693 16	4
706	707	707	708	711	708	711	710	710	704	20 00	711	12 06	685 26	5
706	711	711	711	711	709	711	711	711	707	1 41	713	13 33	698 15	6
713	712	712	711	709	708	709	708	708	709	1 00	714	11 00	694 20	7
705	708	710	710	710	710	709	708	709	705	3 00	714	12 00	689 25	8
702	703	708	708	708	708	708	707	707	706	3 00	713	11 41	691 22	9
706	707	708	712	711	710	709	708	708	706	5 00	712	10 00	695 17	10
707	706	706	706	706	706	706	706	705	703	6 00	712	12 00	688 24	11
701	700	701	705	706	711	712	710	707	707	7 46	715	12 00	687 28	12
702	707	711	712	713	713	712	712	710	707	21 00	716	14 42	697 19	13
703	708	711	713	714	716	714	713	713	709	23 00	717	9 00	708 9	14
710	711	712	712	713	715	716	717	715	712	717	717	708	708 9	15
708	711	711	713	713	713	716	715	715	709	1 48	716	12 00	696 20	16
700	702	704	702	712	713	712	716	721	708	24 00	721	14 07	686 35	17
714	714	712	712	707	717	717	718	719	711	0 00	721	10 51	697 24	18
714	715	711	711	711	710	712	715	711	711	2 00	721	11 00	699 22	19
705	705	706	706	708	708	708	709	711	704	0 00	715	12 00	686 29	20
711	713	714	711	705	700	705	715	721	709	24 00	721	11 40	694 27	21
710	707	709	711	716	719	722	720	721	712	0 33	723	11 00	693 30	22
713	714	711	710	707	708	710	717	716	712	3 00	722	11 00	698 24	23
710	726	728	726	725	721	720	716	718	720	3 24	731	12 00	703 28	24
718	723	722	718	719	724	727	723	724	715	21 47	729	11 17	692 37	25
706	710	716	722	722	719	721	722	720	717	7 00	728	12 05	693 35	26
714	713	714	717	718	717	714	713	716	714	7 24	721	12 18	699 22	27
717	719	719	721	722	722	722	721	721	716	8 00	723	12 00	701 22	28
714	714	715	717	721	722	723	722	721	717	7 07	724	14 00	707 17	29
716	713	711	714	716	718	718	720	720	718	7 00	722	11 45	710 12	30
714	714	716	718	720	720	719	721	723	716	24 00	723	10 00	708 15	31
708	710	711	712	712	713	713	714	714	710	710	710	710	710 23	
709	710	710	711	712	712	712	713	713	709	709	709	709	709 18	

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712	712	712	712	713	716	716	715	717	713	1 00	724	12 00	700 24	1
708	713	715	713	712	715	716	716	716	713	1 00	718	10 24	699 19	2
701	700	702	702	706	705	707	708	708	703	0 46	718	12 16	683 35	3
710	710	699	713	715	714	714	714	714	705	19 31	717	17 36	696 21	4
716	716	715	713	714	712	713	713	717	713	14 00	718	9 00	702 16	5
713	717	717	713	712	713	713	713	714	713	16 15	719	10 24	699 20	6
707	707	712	712	708	707	706	706	706	709	5 00	718	11 36	700 18	7
708	708	711	711	708	708	708	707	707	707	4 00	711	10 24	696 15	8
698	705	709	706	706	707	707	707	707	704	7 00	711	14 37	688 23	9
709	709	714	713	713	703	708	710	708	708	18 00	714	11 50	701 13	10
705	711	712	712	712	711	707	707	707	707	7 00	712	10 00	694 18	11
704	705	708	712	712	712	712	707	707	706	20 00	712	9 00	700 12	12
700	702	704	706	708	711	711	711	710	705	6 37	711	16 00	700 11	13
702	695	700	701	707	706	708	709	707	704	14 05	713	10 19	694 19	14
695	694	694	695	700	705	706	705	710	698	0 35	712	11 00	687 25	15
701	703	703	705	706	705	707	710	712	703	24 00	712	9 27	694 18	16
711	711	704	686	703	710	718	720	716	706	22 15	721	19 00	686 35	17
711	711	711	710	711	711	712	715	712	712	7 30	717	13 43	703 14	18
709	713	714	711	711	712	711	712	714	712	3 00	715	10 40	701 14	19
703	714	713	710	716	716	716	713	714	712	5 56	723	10 14	690 33	20
717	(718)	(719)	(718)	(718)	(717)	(717)	(716)	(716)	714	4 09	727	10 00	702 25	21
706	714	716	717	717	716	715	713	713	713	20 00	717	13 47	699 18	22
(714)	715	721	720	718	717	717	716	715	716	18 00	721	11 00	710 11	23
705	710	712	716	716	716	716	712	713	711	6 00	722	12 00	694 28	24
(717)	719	721	725	728	723	722	718	722	716	20 00	728	10 00	707 21	25
713	709	713	715	717	(717)	718	716	714	716	8 00	723	13 00	706 17	26
703	703	710	715	716	719	721	717	717	713	23 26	726	15 00	696 30	27
707	707	711	718	720	723	720	719	718	715	21 10	723	13 00	705 18	28
707	709	710	711	711	711	711	711	710	709	709	709	709	709 20	
707	709	711	711	711	711	711	711	710	709	709	709	709	709 16	

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33500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	722	718	721	718	717	717	719	716	71	710	706	705	705	698	700
2	716	714	715	713	713	715	716	717	714	712	708	704	702	708	709
3	716	715	714	714	715	714	715	716	717	719	718	712	708	709	709
4	720	722	723	721	717	717	719	720	720	720	719	717	714	717	719
5	720	719	720	720	720	718	719	714	714	715	710	709	715	718	722
6	728	727	723	723	722	718	717	716	712	715	712	706	707	710	711
7	722	732	725	723	726	722	718	720	716	715	715	710	717	719	719
8*	719	720	720	721	723	719	719	716	713	712	709	709	709	713	714
9*	718	718	718	722	717	718	718	717	713	710	706	700	698	700	705
10*	717	715	717	718	718	718	717	712	709	706	705	704	705	706	710
11*	711	717	717	716	716	(715)	(715)	714	714	709	704	699	702	705	708
12*	713	713	714	716	717	717	717	717	715	711	705	701	701	711	713
13	713	713	713	714	714	716	718	712	705	705	706	697	701	702	706
14	719	711	712	718	717	714	712	709	710	711	711	706	705	704	706
15	719	716	712	712	714	712	712	714	712	711	709	705	699	693	698
16	714	716	717	713	713	714	715	715	716	711	705	701	702	702	707
17	718	718	717	716	713	711	712	710	708	705	710	706	705	705	712
18*	718	718	719	711	709	707	712	712	710	713	711	712	716	716	715
19	718	718	717	716	716	710	709	710	712	716	717	720	718	718	718
20	718	722	722	727	723	722	720	719	715	716	715	716	717	719	722
21	729	732	733	729	734	727	722	722	717	717	720	722	722	724	718
22*	723	724	727	729	718	722	721	719	718	715	716	714	717	723	723
23*	721	722	722	722	722	722	720	717	716	715	711	711	712	716	717
24*	716	716	718	720	720	719	716	714	709	709	708	709	714	716	715
25*	715	715	716	719	719	719	714	708	705	702	702	706	704	708	710
26	715	715	716	717	719	719	718	714	712	711	711	713	713	718	719
27	713	713	719	725	718	718	718	717	712	708	712	713	715	718	714
28	724	711	719	738	753	740	742	735	748	725	727	734	725	719	726
29	721	724	725	730	740	741	735	728	724	716	712	714	723	723	728
30	723	723	721	721	721	724	725	725	721	721	721	721	721	727	727
31	737	743	727	728	731	731	727	724	722	719	702	726	726	725	724
Mean....	719	719	719	720	720	719	719	717	715	713	711	711	711	713	714
Mean*....	717	718	719	719	718	718	717	715	712	710	708	706	708	711	713

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1	727	732	722	726	726	724	721	719	725	720	715	714	710	710	719
2	733	728	727	724	728	727	728	725	721	726	727	730	721	732	732
3	729	732	733	729	729	729	726	718	719	724	722	721	720	724	725
4	732	727	725	725	726	724	715	718	715	713	717	711	721	727	728
5*	730	731	731	733	731	728	723	716	716	716	716	716	722	727	726
6	728	728	730	729	727	727	722	715	710	711	711	711	715	721	722
7*	726	724	725	726	726	725	720	717	716	713	712	714	719	719	720
8*	720	724	726	731	728	727	721	719	722	723	721	721	727	730	731
9*	724	723	726	731	728	731	724	719	719	719	720	720	723	725	726
10*	722	724	726	727	728	730	726	725	726	721	720	716	721	724	725
11*	721	721	723	725	726	727	723	715	712	710	713	714	715	714	716
12	720	720	725	735	726	729	726	719	720	715	712	714	714	715	716
13	725	725	724	723	726	728	724	723	719	719	719	720	724	726	725
14*	727	728	723	722	722	725	723	722	722	722	718	717	721	719	722
15*	727	726	725	723	722	723	720	720	719	715	715	714	715	714	715
16	726	725	725	726	727	724	722	718	718	718	718	721	727	727	723
17	727	736	726	727	728	727	721	722	720	716	720	723	721	721	721
18	700	711	727	726	732	732	727	727	725	725	727	732	733	738	732
19	740	731	734	736	732	731	731	729	730	726	725	731	731	734	737
20*	733	733	733	739	735	733	729	728	728	728	733	735	739	741	740
21	732	733	735	734	734	733	729	726	723	723	727	729	730	731	734
22	729	730	730	730	731	731	725	728	730	730	734	731	730	730	730
23	723	727	728	734	732	731	727	725	714	708	716	712	714	721	726
24	726	724	725	730	725	730	730	728	725	725	724	725	730	736	731
25*	731	730	731	731	731	730	730	730	730	730	728	727	725	725	729
26	729	728	725	729	728	728	729	729	729	724	724	723	720	724	724
27	729	694	704	722	731	735	732	727	728	722	730	733	734	739	737
28	737	729	729	733	735	734	727	733	727	720	720	718	733	733	733
29	729	734	729	730	732	733	733	730	730	732	733	728	732	734	736
30	732	727	732	728	733	733	730	726	734	737	744	744	744	737	733
Mean....	727	726	727	729	729	729	725	723	723	721	722	722	724	727	727
Mean*....	726	726	727	729	728	728	724	721	721	720	720	719	723	724	725

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

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33500 $\gamma$  PLUS TABULAR QUANTITIES.

16 $^h$	17 $^h$	18 $^h$	19 $^h$	20 $^h$	21 $^h$	22 $^h$	23 $^h$	24 $^h$	Mean	Maximum	Minimum	Range	Day	
703	706	710	713	714	715	716	719	717	712	h 0 55	723	14 00	698	25 1
703	707	709	710	715	715	715	716	721	712	23 51	722	12 33	700	22 2
710	713	713	715	720	719	720	720	720	715	0 00	721	15 40	708	13 3
709	714	720	719	720	720	723	721	719	719	1 30	726	15 46	706	20 4
719	714	718	718	715	714	719	722	723	717	4 39	723	11 48	708	15 5
708	715	714	715	716	717	723	734	723	717	22 57	734	12 32	703	31 6
716	719	720	720	715	716	719	725	721	720	2 02	734	11 48	710	24 7
713	713	715	716	714	717	715	714	717	715	4 41	724	12 46	707	17 8
710	713	714	711	711	712	712	712	711	712	5 21	724	13 00	698	26 9
705	709	711	712	718	717	713	713	712	712	5 40	720	12 00	704	16 10
710	716	717	717	718	718	718	718	717	713	21 23	719	12 00	699	20 11
713	713	717	719	720	719	719	714	714	714	20 00	720	12 34	700	20 12
712	713	713	715	717	702	714	720	718	711	23 36	722	11 30	696	26 13
706	707	710	712	715	717	719	718	717	712	1 00	719	13 46	698	21 14
705	707	708	710	713	717	717	717	712	710	1 00	719	13 48	691	28 15
708	708	712	714	719	714	719	719	718	713	22 00	719	12 45	700	19 16
710	701	717	718	718	717	718	718	719	713	24 00	719	9 33	704	15 17
715	715	715	716	716	716	717	717	718	714	2 44	720	6 00	707	13 18
720	719	718	710	718	718	717	714	721	716	12 07	721	7 00	709	12 19
723	722	722	721	728	724	722	724	730	721	21 24	739	9 00	715	24 20
723	718	722	722	721	723	723	723	723	724	4 30	735	10 17	716	19 21
723	718	720	720	721	721	720	723	721	721	3 26	732	12 00	714	18 22
716	716	717	719	720	718	716	716	716	718	0 00	723	11 00	711	12 23
713	714	715	716	716	716	715	715	715	715	4 00	720	11 00	708	12 24
711	712	716	718	720	719	717	716	716	713	20 00	720	10 00	702	18 25
717	715	716	719	718	715	710	717	716	716	15 00	719	8 52	710	9 26
714	719	714	730	714	713	709	705	717	715	19 00	730	23 19	697	33 27
728	725	738	737	734	729	725	730	735	731	4 43	756	1 54	709	47 28
726	724	728	729	731	729	727	727	725	726	6 11	744	11 00	712	32 29
726	721	721	721	719	719	725	732	728	723	23 00	732	18 31	714	18 30
727	724	727	728	737	733	741	728	729	728	21 45	749	10 55	701	48 31
714	715	717	718	719	718	719	720	720	717					22
713	714	716	716	717	717	716	716	716	715					17

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724	725	726	726	724	737	721	724	729	723	1 42	734	14 09	708	26 1
734	729	732	730	732	732	734	733	729	729	0 34	737	12 44	717	20 2
722	721	722	722	724	726	726	725	728	725	3 00	733	8 21	715	18 3
727	727	725	725	725	725	728	729	730	724	1 00	732	12 21	710	22 4
726	722	722	725	725	725	724	725	726	724	2 18	733	8 25	715	18 5
721	721	721	721	722	722	722	722	722	721	3 00	730	9 00	710	20 6
721	725	725	725	725	724	722	721	720	721	4 00	726	11 00	712	14 7
729	731	731	729	726	721	724	721	720	725	3 15	732	8 00	719	13 8
726	728	730	733	732	728	727	723	723	725	19 00	733	8 48	718	15 9
725	725	727	730	729	729	727	726	723	725	19 00	730	12 00	716	14 10
716	717	720	724	723	724	727	726	726	720	6 00	727	10 00	710	17 11
719	721	721	721	729	733	733	732	728	723	4 16	736	11 38	711	25 12
721	720	721	724	728	733	729	728	725	725	21 00	733	10 38	718	15 13
723	723	726	727	728	729	730	729	729	724	23 00	732	12 00	717	15 14
719	720	720	723	725	725	725	725	727	721	0 00	729	14 00	714	15 15
723	719	723	724	725	726	724	725	724	724	23 47	736	9 00	718	18 16
722	722	721	721	722	721	716	719	707	722	0 07	740	24 00	707	33 17
733	736	739	733	733	733	733	733	729	729	14 18	740	0 43	699	41 18
735	732	732	731	730	730	729	731	733	732	1 00	740	11 00	725	15 19
737	734	733	733	733	732	731	730	731	733	14 00	741	8 20	728	13 20
734	733	733	730	730	729	729	728	727	730	2 43	737	9 00	723	14 21
730	729	729	725	724	722	727	729	730	729	12 00	734	21 00	722	12 22
728	727	716	725	722	728	732	731	730	724	21 28	739	10 00	708	31 23
729	730	730	730	726	725	726	723	737	728	24 00	737	2 00	724	13 24
730	731	731	730	732	732	733	731	730	730	0 22	737	13 20	724	13 25
727	727	730	730	734	736	732	731	730	728	20 52	736	13 00	720	16 26
732	733	738	739	734	733	735	735	733	730	14 07	742	2 00	694	48 27
726	732	731	726	734	734	735	734	735	730	22 38	741	12 45	715	26 28
733	733	733	733	738	738	738	737	727	733	21 37	741	11 45	722	19 29
732	727	731	731	732	736	732	737	731	733	13 32	746	7 25	723	23 30
727	727	727	728	728	729	728	729	728	726					20
725	726	726	728	728	727	727	726	726	725					15

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33500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1*	730	731	731	731	725	724	723	729	731	734	734	731	730	730	727
2	733	730	732	729	726	725	723	718	723	729	730	734	734	736	735
3	732	734	734	734	732	728	727	727	728	724	729	733	733	734	735
4*	734	730	729	728	730	729	728	724	725	728	733	736	738	737	734
5*	733	735	736	734	735	732	731	730	727	729	733	736	737	741	740
6*	732	732	736	734	734	736	735	733	735	736	736	737	737	736	741
7*	730	730	734	735	735	735	739	735	731	728	728	729	735	738	739
8*	729	731	735	737	737	738	737	734	731	731	729	729	730	729	732
9	723	728	729	733	734	733	733	733	731	728	727	727	727	729	729
10	723	725	728	733	732	734	734	734	734	736	732	731	730	727	730
11	720	726	727	729	731	732	732	732	736	742	743	738	732	726	726
12	731	730	727	730	731	731	731	731	734	736	737	731	738	737	734
13	724	724	730	729	730	730	730	729	735	732	736	748	742	743	738
14	732	732	735	732	731	731	729	719	718	721	719	714	720	722	725
15	729	730	730	738	728	730	731	726	719	728	736	741	742	742	742
16	730	730	731	732	730	730	728	729	730	733	735	739	741	741	741
17	736	735	738	743	732	733	730	728	726	727	728	726	724	732	731
18	735	735	734	735	734	732	731	738	728	729	733	745	749	748	741
19	745	749	749	745	744	738	726	733	729	733	740	745	739	738	739
20*	738	739	738	739	743	739	732	737	742	741	744	742	738	740	744
21*	735	739	737	738	738	738	729	733	738	737	734	731	733	737	739
22	729	732	732	732	735	738	738	737	737	738	737	737	737	741	741
23*	730	731	730	730	730	730	724	722	719	718	721	723	723	730	732
24	727	724	729	729	729	730	726	740	734	734	733	728	727	738	740
25	735	738	739	740	738	737	736	732	733	731	730	729	729	741	741
26	734	740	727	734	734	737	734	733	734	738	742	745	741	739	741
27*	730	733	734	731	735	735	733	735	738	738	734	733	731	734	734
28	731	732	728	731	732	729	733	733	733	735	738	739	738	739	745
29	733	728	733	733	733	733	736	733	737	739	736	738	737	734	733
30	732	731	730	732	726	726	726	730	730	731	732	731	732	730	732
31	735	737	738	735	732	728	724	726	730	732	737	738	744	733	740
Mean.....	731	732	733	734	733	732	731	731	731	732	733	734	734	735	736
Mean*....	732	733	734	734	734	734	731	731	732	732	733	733	733	735	736

JUNE, 1910.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

1	738	738	739	737	733	733	736	736	733	740	745	746	749	748	746
2	739	739	739	738	737	735	731	725	724	732	739	743	743	745	748
3*	738	738	737	734	733	731	721	720	718	720	724	730	736	738	739
4*	734	737	736	736	736	731	726	728	731	733	739	739	740	742	742
5*	733	736	738	737	737	735	730	729	734	735	737	734	739	740	740
6	733	735	736	738	737	736	731	726	725	725	729	730	727	738	748
7*	730	730	730	734	734	735	733	728	720	721	720	718	721	722	727
8	726	727	727	732	733	730	725	721	717	716	725	726	731	733	721
9	724	722	726	733	729	737	735	740	739	738	737	739	737	734	744
10	735	732	734	735	735	734	735	729	727	726	731	731	736	740	739
11	734	732	732	733	734	738	736	731	736	735	728	725	724	728	732
12	736	733	731	732	731	731	730	725	731	731	737	737	737	739	737
13	736	731	730	729	731	731	729	731	736	745	741	744	744	743	743
14*	733	733	730	729	729	728	728	732	727	726	727	726	727	734	729
15*	733	732	730	731	728	727	725	726	727	732	735	735	736	736	736
16*	733	733	733	733	732	732	728	726	729	732	739	739	740	742	743
17*	734	734	736	734	734	733	728	731	733	739	740	748	749	748	750
18*	734	734	733	734	734	732	727	724	724	732	735	738	738	737	737
19	733	733	733	733	733	732	723	720	722	726	731	733	735	735	733
20	722	728	730	739	739	732	725	725	728	730	737	738	738	737	758
21	735	735	737	735	733	733	735	735	734	735	740	740	746	747	747
22	736	736	738	740	741	739	736	737	735	740	740	741	732	736	739
23	735	732	736	737	738	738	739	740	739	739	740	745	741	741	744
24	733	732	734	732	733	734	731	727	727	727	729	731	732	731	730
25	729	730	732	735	732	737	732	730	734	737	738	746	742	738	739
26	731	733	734	734	733	731	729	721	721	723	728	733	738	738	733
27	738	734	731	731	732	732	731	731	731	735	734	737	737	736	738
28*	733	733	733	733	736	732	728	726	727	732	736	743	743	746	744
29	737	736	738	733	732	731	732	737	739	748	752	760	755	754	745
30	739	737	734	733	732	731	725	728	731	737	744	742	741	742	738
Mean.....	733	733	734	734	734	733	730	729	732	735	737	737	738	739	740
Mean*....	734	734	734	734	734	733	727	727	727	730	733	734	737	739	739

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

MAY, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
725	724	725	727	728	730	731	732	731	729	11 00	734	7 00	723	11
735	734	727	724	727	724	725	740	734	729	22 46	741	7 55	717	24
735	731	730	729	729	732	732	734	734	731	2 33	735	7 47	723	12
730	729	727	726	731	734	733	731	733	731	13 43	740	7 48	722	18
732	735	732	731	730	730	732	732	732	733	14 00	741	9 00	727	14
737	736	732	733	730	733	732	731	731	734	15 00	741	20 00	730	11
739	735	736	735	735	734	731	730	734	734	15 34	740	10 00	728	12
735	735	734	733	735	732	730	725	726	732	6 00	738	22 47	724	14
727	728	728	733	734	734	731	729	726	730	7 18	738	1 00	723	15
730	726	728	730	731	731	727	727	724	730	9 00	737	1 18	722	15
727	729	733	733	737	738	736	736	733	732	11 00	743	1 00	720	23
727	727	731	731	732	733	733	729	728	732	13 00	738	3 05	726	12
735	732	732	733	736	737	740	741	739	734	12 00	748	7 39	714	34
725	726	726	726	727	727	731	734	738	727	0 14	739	12 00	714	25
737	730	729	727	729	730	733	732	741	732	14 00	742	9 21	718	24
736	736	735	734	735	735	734	735	736	734	14 29	742	6 46	725	17
731	729	731	729	728	731	730	734	731	731	4 09	749	13 00	724	25
740	734	735	735	736	734	736	738	739	736	13 02	750	9 28	726	18
739	739	740	744	740	738	739	736	736	739	2 42	756	7 27	725	31
739	742	741	740	738	736	734	734	735	739	15 00	744	7 30	730	14
738	738	738	738	735	735	731	733	732	736	15 28	741	7 10	727	14
739	740	738	738	737	733	732	732	732	736	15 12	742	0 45	728	14
732	733	736	730	727	730	730	729	725	728	18 00	736	10 00	718	18
735	740	741	741	723	729	742	740	729	733	22 19	749	19 48	721	28
744	751	740	740	741	742	736	736	736	737	16 53	752	13 38	724	25
744	741	741	738	739	735	736	735	741	738	11 35	746	3 00	727	19
736	734	735	736	736	738	734	734	735	734	0 05	741	1 53	728	13
737	737	734	737	734	734	740	734	735	735	14 50	746	1 39	728	18
733	733	733	733	733	733	734	734	733	734	10 00	739	2 00	728	11
735	733	733	732	732	732	738	733	734	731	21 45	739	7 24	724	15
741	741	739	736	738	741	741	739	744	736	13 00	744	7 20	723	21
735	734	734	733	733	733	734	733	733	733				19	
734	734	734	733	732	733	732	731	731	733				14	

JUNE, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

745	740	739	739	739	740	740	739	740	740	13 00	749	7 45	728	21
745	739	734	735	733	733	733	733	736	737	15 00	748	9 00	724	24
738	737	733	735	732	731	732	732	732	732	15 00	739	9 00	718	21
743	739	741	738	736	733	732	733	732	736	16 00	743	7 00	726	17
740	739	738	737	736	736	732	732	730	735	14 00	740	7 41	727	13
748	743	741	738	736	735	731	730	729	734	15 21	748	9 00	725	23
729	729	731	732	729	729	728	725	723	727	5 30	736	12 00	718	18
731	727	727	727	727	731	726	733	727	727	5 15	735	9 23	715	20
739	737	735	732	738	741	742	740	738	736	13 55	744	1 51	721	23
735	736	737	736	737	739	738	736	732	734	14 52	742	8 24	724	18
734	734	729	737	737	737	737	738	735	733	23 00	738	12 27	724	14
731	727	727	728	732	733	736	737	735	733	14 15	741	8 00	725	16
738	732	729	732	734	733	733	734	734	735	10 00	745	7 20	728	17
731	729	728	728	728	729	730	730	731	729	14 00	734	9 15	724	10
733	733	731	730	731	731	732	732	733	732	14 00	739	7 10	724	15
738	734	733	734	733	732	731	733	734	734	12 34	743	8 00	726	17
745	739	738	737	735	734	734	734	738	738	15 00	750	7 25	728	22
739	738	733	735	733	734	731	733	733	734	16 00	739	8 00	724	18
733	729	729	728	727	725	721	717	710	728	13 42	736	23 40	707	29
736	740	738	741	737	737	737	738	731	735	14 48	760	0 00	710	20
746	752	737	744	734	736	736	737	738	739	16 36	753	19 48	724	29
742	742	741	741	740	738	740	733	734	738	17 15	743	12 24	730	13
746	741	740	741	741	736	735	734	734	739	12 27	745	2 10	731	14
727	727	731	734	734	734	734	734	734	732	22 32	735	7 44	725	10
734	734	738	735	738	738	738	734	733	736	12 00	746	7 44	726	20
733	735	735	735	736	736	739	739	738	733	12 27	739	8 00	721	18
739	738	733	734	737	739	739	738	737	735	16 09	742	4 00	731	11
737	737	736	735	738	738	738	738	738	736	14 00	746	8 00	726	20
744	732	732	735	737	739	738	739	739	740	12 21	761	6 24	729	32
737	734	732	734	734	734	739	738	737	736	11 48	744	7 00	725	19
738	736	734	735	735	735	734	734	733	734				20	
737	735	735	734	734	733	732	732	732	733				17	

## PORTO RICO MAGNETIC OBSERVATORY.

JULY, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1*	737	737	736	731	732	731	724	724	729	732	735	732	731	735	738
2	734	734	735	734	733	731	728	728	727	728	729	729	729	734	735
3	736	734	737	737	739	727	724	720	726	729	738	738	736	733	736
4	733	735	736	737	737	736	728	724	727	724	723	727	729	734	736
5	716	733	735	735	742	737	724	723	726	724	728	730	728	735	740
6	735	736	740	732	734	733	727	730	729	729	737	740	734	735	736
7	733	731	740	734	740	741	733	738	744	742	745	741	738	735	737
8	735	734	735	738	737	734	734	733	734	733	729	733	733	735	733
9	738	734	732	734	734	738	734	730	733	733	733	728	734	733	734
10	731	729	735	739	734	734	728	732	739	739	739	739	739	742	742
11	739	734	734	735	735	739	733	730	732	736	740	745	744	744	744
12*	738	738	737	737	736	737	732	726	725	726	725	727	731	733	738
13*	739	739	738	739	738	738	738	737	740	738	736	741	744	744	741
14*	735	734	733	733	733	732	731	727	726	725	723	725	730	733	735
15*	735	735	734	732	731	732	730	723	725	726	730	733	737	741	736
16*	732	736	737	737	737	733	727	725	726	730	732	742	736	732	730
17	732	733	734	737	737	737	733	732	734	731	730	733	737	733	737
18	733	735	736	735	736	732	726	724	727	730	733	733	734	736	739
19*	725	728	732	735	735	734	729	724	718	725	722	719	720	726	732
20*	731	732	735	734	734	734	729	723	717	717	723	729	733	734	735
21*	731	734	741	735	737	737	730	728	727	729	731	734	734	741	741
22	731	730	731	733	735	735	729	730	727	724	723	728	735	731	741
23	731	731	730	733	738	735	733	724	724	724	723	727	728	732	734
24	728	729	728	727	733	732	728	727	732	732	731	732	734	739	739
25	733	733	731	729	733	733	733	736	726	728	727	728	732	732	734
26	735	732	731	731	731	731	731	733	738	743	740	742	741	740	741
27*	739	736	736	735	736	736	733	731	730	732	738	738	732	727	728
28	737	735	733	732	731	730	726	725	720	726	741	742	742	738	733
29	740	739	740	739	734	738	731	731	736	736	737	739	742	745	746
30	740	740	739	739	738	738	733	727	732	735	736	736	737	733	734
31	739	740	738	735	738	733	725	725	730	731	732	737	741	739	738
Mean...	734	734	735	735	735	735	730	728	729	730	732	734	735	736	737
Mean*...	734	735	736	735	735	734	730	727	726	728	730	732	732	735	735

AUGUST, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	738	737	737	737	735	736	729	720	---	---	---	---	740	746	743
2	740	742	734	739	739	736	734	729	729	734	734	740	746	743	743
3	735	738	743	740	740	738	740	735	735	734	730	734	740	751	752
4	737	741	747	741	742	741	735	731	735	730	729	731	729	740	741
5	734	742	740	740	744	742	734	733	735	734	734	733	734	739	743
6	733	735	735	737	738	738	733	730	727	727	728	732	737	738	740
7*	741	740	740	742	744	744	738	737	738	740	746	744	744	744	744
8*	743	744	742	743	743	744	739	739	738	743	744	743	743	744	744
9*	743	740	737	736	738	738	738	732	726	736	742	744	743	741	736
10	748	738	748	742	747	750	752	740	747	747	745	736	743	754	750
11	747	753	743	742	742	743	743	741	741	734	740	745	746	749	749
12*	747	741	746	746	744	746	746	736	735	741	747	751	754	754	754
13*	747	746	743	741	742	742	740	738	740	746	748	752	752	752	754
14	746	746	746	746	743	742	738	734	733	734	736	740	741	744	745
15*	746	746	745	745	745	745	739	738	745	748	750	744	744	745	745
16*	745	745	745	745	745	745	747	737	733	743	749	750	751	751	752
17	745	746	746	747	746	745	736	731	728	731	733	733	734	734	740
18	746	746	742	747	746	744	736	734	735	734	737	740	748	752	757
19	752	741	737	748	744	745	735	731	727	727	727	732	736	743	739
20	739	738	741	743	743	743	737	731	730	725	726	726	732	738	741
21	743	743	741	744	747	742	736	731	736	737	743	748	747	745	743
22	738	749	741	732	738	744	747	739	732	737	750	750	754	758	755
23	750	750	750	749	750	750	743	743	742	744	747	747	748	750	750
24	749	748	742	746	750	752	753	742	741	736	741	745	749	753	748
25*	751	747	748	744	745	747	747	741	748	747	742	746	746	747	747
26*	753	749	748	748	746	747	745	750	752	746	746	743	740	745	746
27*	749	749	747	745	745	745	743	744	744	739	739	740	746	745	746
28	750	751	755	751	753	751	729	733	734	734	738	728	745	750	749
29	744	761	748	748	754	754	746	737	737	743	747	746	749	756	756
30	749	755	749	749	749	750	746	741	735	733	741	738	749	755	755
31	749	748	752	749	748	749	745	743	745	743	743	748	748	753	754
Mean...	745	745	744	744	745	744	740	737	737	737	740	741	744	747	747
Mean*...	746	745	744	744	744	743	741	739	740	742	745	746	747	746	747

\* The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

87

JULY, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
735	731	729	729	729	729	730	730	730	732	14 36	739	7 13	16	1
735	736	733	733	730	730	731	730	733	732	17 00	736	9 00	727	2
737	737	735	735	733	732	732	733	734	734	3 40	741	7 42	714	3
745	736	729	735	730	728	734	717	708	730	16 00	745	24 00	708	4
736	732	737	739	736	735	738	734	734	732	4 55	745	0 00	708	5
740	738	737	735	740	740	737	736	735	735	2 20	742	7 49	726	6
741	740	740	742	741	740	740	739	736	739	8 44	745	7 27	727	7
734	737	735	739	737	737	735	736	736	735	3 36	739	11 00	729	8
735	735	735	736	740	740	739	739	736	735	21 00	740	12 00	728	9
738	735	735	736	739	740	740	736	737	737	14 44	746	7 00	728	10
745	742	741	741	743	743	744	743	740	739	12 00	745	8 00	730	11
738	733	733	734	735	739	739	739	739	734	0 00	740	11 00	725	12
738	735	734	736	735	734	737	737	736	738	14 00	744	10 42	734	13
732	732	732	732	732	732	733	734	735	731	0 00	736	11 00	723	14
737	733	733	733	733	734	733	733	732	733	14 00	741	8 00	723	15
730	732	732	732	731	728	731	732	732	732	12 00	742	8 06	723	19
736	733	733	732	732	732	733	733	733	734	14 07	739	11 00	730	9
740	736	734	732	732	728	726	727	727	732	16 10	742	21 40	723	18
731	734	731	737	735	734	731	731	731	729	18 14	737	9 00	718	19
737	735	737	738	736	735	734	734	733	732	15 34	739	9 31	714	20
736	736	737	735	737	737	733	733	733	734	14 21	741	8 46	725	21
739	736	736	736	736	731	733	732	734	732	15 00	741	10 39	722	22
736	734	734	733	734	734	723	729	729	731	4 48	738	8 39	722	23
739	739	736	735	736	736	736	735	733	733	14 15	740	7 30	726	24
733	733	733	735	739	739	738	739	735	733	21 00	739	9 00	726	25
740	739	739	740	741	741	741	742	740	738	10 00	743	3 00	731	26
730	732	732	734	734	734	738	738	739	734	0 00	740	13 40	727	27
734	732	736	738	733	734	732	722	733	733	13 00	742	8 51	720	28
743	739	739	737	736	740	740	744	739	739	15 00	746	8 21	726	29
734	733	733	733	733	733	734	735	737	735	0 15	745	8 00	727	30
741	739	538	735	734	734	735	737	738	736	13 44	743	7 46	718	31
737	735	735	735	735	735	735	735	734	734				18	
734	733	733	734	734	734	734	734	734	733				16	

AUGUST, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

735	730	730	734	735	730	729	730	738	738	16 00	747	8 00	729	1
747	744	741	741	740	737	737	737	736	738	15 00	740	15 00	752	2
748	748	747	746	742	741	736	736	736	740	15 00	752	8 36	726	3
742	743	744	746	744	744	741	745	729	739	3 00	747	13 00	729	4
742	744	743	743	742	742	739	739	734	739	15 18	745	7 13	729	5
745	745	745	747	746	745	745	745	741	738	19 00	747	9 15	726	6
743	743	743	747	748	748	747	747	743	743	21 14	748	8 00	737	7
745	744	744	744	744	745	746	745	744	743	21 29	748	9 00	738	8
739	737	737	737	737	739	739	737	737	738	12 00	744	9 00	726	9
755	754	748	748	748	748	748	750	749	747	6 24	762	12 29	733	10
743	743	742	742	746	746	746	745	741	744	1 29	754	10 44	733	11
749	749	748	743	745	744	748	749	749	746	14 00	754	8 51	734	12
753	748	747	747	744	746	745	746	745	746	15 32	758	7 57	737	13
750	746	751	747	742	741	747	748	750	743	16 18	760	8 28	731	14
745	746	745	741	742	742	746	746	745	744	11 00	750	7 18	735	15
752	752	750	748	746	743	743	746	747	746	15 38	753	8 00	733	20
746	745	750	746	746	741	746	747	749	741	18 00	750	9 00	728	21
752	751	745	746	750	748	745	741	741	744	15 13	758	7 30	732	22
743	744	747	743	743	742	747	745	736	740	1 03	753	9 17	726	23
744	744	745	750	748	747	745	744	744	739	18 48	751	10 00	725	24
744	751	750	755	755	750	755	755	746	746	15 38	753	8 00	733	25
758	762	767	763	760	756	753	752	750	759	19 00	767	9 35	729	26
748	753	749	755	749	754	757	754	753	749	22 00	757	8 42	741	27
745	751	754	756	756	756	755	754	753	749	18 43	757	10 00	736	28
748	747	752	752	753	753	755	756	753	748	22 27	758	8 27	740	29
745	746	746	746	747	748	749	751	752	747	0 45	756	13 00	740	30
745	745	746	746	746	746	751	752	745	745	24 00	752	11 00	739	31
750	749	745	733	739	751	764	757	745	745	23 29	767	7 17	721	32
755	752	749	749	751	749	749	751	752	748	1 46	766	8 39	734	33
750	751	749	745	749	748	750	750	747	747	14 23	756	9 25	732	34
755	755	756	752	752	747	750	755	746	749	18 00	756	7 42	743	35
748	748	747	747	746	746	745	747	747	747				22	
746	746	746	745	745	746	746	747	747	745				16	

## PORTO RICO MAGNETIC OBSERVATORY.

SEPTEMBER, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	749	749	748	748	747	747	742	738	741	742	740	744	747	748	749
2*	749	753	755	754	751	751	741	737	737	742	740	735	741	743	744
3*	748	748	748	748	751	753	742	738	733	734	736	731	730	735	741
4*	743	747	748	748	748	748	740	732	736	741	739	737	740	742	742
5*	743	743	745	744	748	747	741	734	734	734	733	733	735	730	735
6	745	745	746	745	745	749	741	734	724	729	728	732	733	742	745
7	742	746	748	748	753	752	746	735	735	737	740	740	746	746	747
8*	758	758	757	755	757	756	750	747	743	741	744	746	747	748	753
9*	754	754	754	754	752	752	747	745	747	747	747	750	753	753	752
10	753	753	753	753	753	754	746	744	745	746	744	745	750	752	751
11	757	759	759	759	758	752	742	740	735	735	726	739	743	746	749
12*	756	757	756	755	753	752	746	740	736	735	735	740	746	748	750
13	753	752	755	751	752	752	743	740	735	732	735	741	744	751	753
14	755	761	758	752	752	752	751	746	746	747	747	751	759	763	760
15	758	757	757	761	757	754	745	747	749	754	760	761	763	763	762
16	751	752	757	757	757	754	744	744	745	746	750	755	755	745	751
17*	757	755	755	757	758	757	751	751	747	745	744	743	744	745	744
18*	750	755	751	756	756	756	750	747	739	737	738	740	742	744	745
19*	749	749	752	755	755	755	749	749	752	750	751	748	748	748	750
20	750	750	752	754	756	756	750	744	738	733	733	734	732	730	727
21	758	754	751	754	756	766	758	755	755	749	743	743	744	745	749
22	753	751	757	764	753	758	755	(755)	756	747	747	751	749	752	752
23	757	761	750	750	754	757	753	750	751	752	750	754	753	748	752
24	757	759	756	753	756	756	750	753	760	760	758	757	761	761	751
25	766	756	756	759	761	771	760	753	757	755	744	760	760	756	756
26	757	760	760	757	757	759	756	755	754	754	754	752	755	755	757
27	764	761	761	760	761	762	759	749	754	749	746	754	752	751	754
28	770	760	759	765	767	761	758	753	752	750	754	759	763	765	765
29	766	769	767	769	766	764	764	743	737	755	752	750	756	765	760
30	772	780	770	767	770	771	759	758	754	758	764	763	760	760	760
Mean.....	755	755	755	755	755	756	749	745	744	744	744	746	748	749	750
Mean*....	751	752	752	753	753	753	746	742	740	741	741	740	743	744	746

OCTOBER, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	767	770	773	774	774	771	766	759	758	760	762	763	763	766	767
2	764	763	768	775	759	766	764	757	762	756	756	757	756	752	763
3	763	756	761	763	766	766	761	758	756	754	747	755	762	756	758
4	754	757	755	755	768	766	761	757	755	755	753	754	758	754	759
5	761	761	763	765	765	761	760	754	747	743	744	746	748	748	755
6	760	760	777	752	759	755	759	750	748	742	742	749	736	757	748
7	762	762	762	763	761	761	759	753	749	747	748	748	749	749	753
8*	765	764	761	761	761	761	761	760	756	751	750	752	754	748	750
9*	756	760	758	758	759	759	755	752	749	749	747	747	748	747	747
10*	755	755	756	756	757	757	752	750	746	744	747	748	748	753	753
11*	760	762	760	763	761	759	758	756	754	753	753	753	748	753	757
12	761	766	764	765	765	761	757	752	744	747	748	749	752	757	747
13	762	766	773	768	767	768	766	761	757	760	758	761	768	766	764
14	761	763	764	761	759	759	758	749	741	739	746	752	756	757	758
15*	760	760	763	763	762	759	759	753	748	743	743	748	750	750	748
16*	758	759	760	763	762	759	758	751	746	750	752	758	758	759	758
17*	758	759	762	763	763	763	758	754	752	752	752	754	753	752	750
18*	754	758	758	760	762	762	758	752	746	746	746	743	742	746	747
19	751	753	755	760	759	752	762	749	746	740	744	747	744	750	750
20	761	758	758	763	765	764	763	762	752	752	747	753	752	749	752
21	754	756	758	757	760	761	759	751	744	740	742	742	747	739	753
22*	758	761	757	757	757	761	760	752	748	748	746	745	745	749	749
23	760	761	756	756	759	760	763	756	760	757	756	755	755	750	749
24	761	761	761	761	763	763	757	756	751	757	758	759	757	753	755
25	759	760	767	767	762	762	762	751	760	756	753	748	755	757	754
26	774	764	763	764	767	766	760	769	758	760	759	752	752	756	753
27	761	765	768	771	775	774	758	761	760	761	762	760	760	776	
28	764	765	769	768	770	766	765	760	759	761	761	758	758	764	
29	765	766	771	772	766	766	764	765	758	760	757	757	759	760	759
30*	764	767	767	767	768	766	768	761	755	754	754	749	754	752	752
31	761	762	765	765	765	765	758	756	753	753	753	752	752	757	756
Mean.....	760	761	763	764	763	763	760	756	752	751	751	752	753	753	755
Mean*....	759	760	760	761	761	760	759	754	750	749	749	750	750	750	751

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

HOURLY VALUES OF VERTICAL INTENSITY.

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SEPTEMBER, 1910.

33500<sub>r</sub> PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum		Minimum		Range	Day	
750	748	752	750	749	751	753	751	751	747	h	m	757	7	48	736	21
739	749	752	753	751	751	749	749	748	746	3	23	755	12	00	735	20
743	748	750	750	750	748	748	748	748	744	6	00	753	12	33	730	23
743	744	748	749	749	750	748	748	746	744	21	00	750	8	00	732	18
740	741	745	747	748	749	747	747	747	741	5	13	750	14	00	730	20
745	745	744	745	748	756	752	755	746	742	23	13	759	9	00	724	35
748	748	752	752	753	753	755	753	753	747	21	18	756	9	00	735	21
748	753	748	753	754	756	755	757	757	752	1	43	759	10	00	741	18
747	748	751	752	752	752	753	753	753	751	2	28	757	8	00	745	12
752	752	753	754	754	756	758	758	759	752	24	00	759	8	23	740	19
751	748	752	753	753	753	754	755	754	749	2	00	759	10	00	735	24
751	748	751	752	753	753	753	753	756	749	2	00	757	10	00	735	22
747	751	752	749	752	748	755	752	753	748	0	00	756	9	35	731	25
758	756	758	753	753	752	752	752	755	754	14	17	764	7	34	741	23
758	757	758	758	756	756	756	754	757	757	13	31	765	7	25	745	20
754	756	757	756	756	753	753	752	753	752	3	33	761	8	55	741	20
749	752	756	754	755	751	751	750	751	751	4	32	759	12	00	743	16
745	749	754	755	753	750	750	748	749	748	5	30	757	11	18	736	21
753	756	757	757	756	756	754	751	750	752	18	00	757	14	00	748	9
737	744	745	751	757	756	744	744	752	745	20	32	760	15	08	725	35
755	757	(760)	(759)	(758)	(757)	(756)	755	754	754	5	27	768	12	00	743	25
752	751	744	755	760	757	758	762	762	754	4	00	764	18	00	744	20
751	751	752	757	758	758	759	759	757	754	1	46	764	14	15	747	17
750	750	745	751	751	761	755	757	756	755	13	00	761	20	28	739	22
757	758	761	757	754	758	758	761	758	758	5	54	772	11	00	744	28
761	763	761	756	756	756	756	761	761	757	17	00	763	11	37	749	14
754	754	754	752	754	754	758	762	760	756	3	18	767	10	40	744	23
767	766	767	761	761	761	761	761	761	761	1	00	770	9	27	747	23
765	767	772	777	777	772	771	769	771	764	19	00	777	8	13	737	40
764	(770)	777	773	771	768	769	768	766	766	2	00	780	9	12	753	27
751	753	754	755	755	755	755	755	755	752							22
746	749	751	752	752	752	751	750	750	748							18

OCTOBER, 1910.

33500 $r$  PLUS TABULAR QUANTITIES.

772	769	764	767	766	747	762	763	768	765	5 00	774	20 27	743	31	1
766	766	764	768	763	764	758	758	757	762	3 50	777	14 10	752	25	2
763	768	767	757	758	755	756	756	751	759	17 00	768	10 51	745	23	3
760	765	755	772	768	766	766	764	761	760	19 00	772	0 12	746	26	4
755	754	754	753	750	745	755	763	760	755	4 38	765	20 39	736	29	5
737	764	765	765	765	765	765	765	763	756	3 00	777	12 50	721	56	6
746	753	759	760	757	761	763	763	766	756	24 00	766	16 05	744	22	7
754	750	754	754	761	762	762	760	760	757	0 00	766	14 00	748	18	8
751	753	755	754	756	755	757	759	756	754	1 29	768	11 00	747	21	9
749	750	751	756	760	760	760	760	761	763	24 00	761	10 00	744	17	10
760	759	761	761	761	760	758	765	757	758	3 35	765	13 00	748	17	11
756	758	751	743	746	758	750	766	761	755	22 47	772	18 44	737	35	12
762	765	755	755	755	755	761	759	761	762	2 46	775	11 43	750	25	13
757	756	748	756	756	758	757	760	755	755	2 53	765	10 00	739	26	14
750	752	754	755	754	753	753	754	755	754	3 00	763	10 46	741	22	15
758	759	759	759	756	756	756	756	757	757	4 24	764	9 00	746	18	16
754	761	759	758	757	755	754	752	752	756	5 00	763	15 00	750	13	17
748	753	756	756	756	755	753	749	750	752	6 00	762	13 00	742	20	18
752	755	764	767	759	763	758	763	762	754	7 20	769	10 00	740	29	19
754	759	765	766	763	764	764	769	758	759	4 18	769	11 00	747	22	20
754	758	757	760	762	758	760	758	756	754	6 26	762	14 00	739	23	21
752	751	753	757	760	760	760	761	760	754	21 16	763	11 33	742	21	22
748	754	759	762	765	762	764	764	764	758	22 09	768	15 24	741	27	23
755	756	755	755	754	754	759	755	758	757	5 44	767	9 07	749	18	24
756	759	756	755	765	759	764	762	759	759	3 30	770	11 56	746	24	25
754	757	753	754	759	762	763	764	774	761	1 16	783	13 28	747	36	26
775	772	764	766	760	758	755	756	765	764	4 36	777	21 33	738	39	27
763	763	758	761	761	760	760	761	763	762	1 32	774	13 54	757	17	28
760	764	764	761	763	759	762	761	761	763	4 00	772	11 30	755	17	29
756	764	765	762	762	760	760	760	760	760	6 36	768	11 29	746	22	30
759	765	767	770	765	765	763	762	762	761	19 00	770	12 39	751	19	31
756	759	758	760	759	758	759	760	760	758					24	
753	755	757	757	758	758	757	758	758	757					19	

## PORTO RICO MAGNETIC OBSERVATORY.

NOVEMBER, 1910.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

Day	1 <sup>h</sup>	2 <sup>h</sup>	3 <sup>h</sup>	4 <sup>h</sup>	5 <sup>h</sup>	6 <sup>h</sup>	7 <sup>h</sup>	8 <sup>h</sup>	9 <sup>h</sup>	10 <sup>h</sup>	11 <sup>h</sup>	Noon	13 <sup>h</sup>	14 <sup>h</sup>	15 <sup>h</sup>
1	763	765	770	769	767	767	763	758	757	757	753	754	756	756	761
2	759	765	766	765	775	769	771	770	764	763	759	761	757	757	759
3*	765	765	766	767	770	769	769	766	760	759	758	758	761	761	760
4*	764	764	765	765	764	764	760	758	754	753	752	753	755	758	760
5*	762	762	760	763	763	763	762	757	755	755	755	755	755	755	757
6*	767	767	768	767	767	768	767	766	766	763	762	762	760	758	763
7	763	763	763	762	764	762	762	767	762	761	764	760	758	759	763
8	764	765	764	764	765	763	763	759	754	752	752	753	759	756	758
9	762	761	758	760	756	762	757	754	755	755	755	753	750	749	749
10	767	762	759	758	761	760	762	762	760	756	760	764	761	761	761
11*	762	764	764	762	760	760	761	759	754	752	753	754	754	757	762
12*	760	760	763	761	760	761	761	760	756	756	757	757	761	767	762
13*	761	762	763	763	762	762	758	754	750	748	748	750	751	755	761
14*	761	762	762	762	764	764	761	753	744	743	746	748	751	749	751
15*	761	765	765	767	767	766	764	760	754	753	751	754	755	755	757
16	756	762	763	769	772	773	769	767	758	751	753	755	757	755	762
17	759	767	771	773	770	774	773	760	759	754	750	753	759	760	764
18	765	765	765	768	769	772	765	765	752	743	734	742	748	752	760
19	766	766	767	766	765	768	767	765	761	754	757	753	757	763	761
20	763	763	764	763	765	766	769	765	759	756	756	756	759	761	761
21	767	767	771	765	766	767	767	763	759	753	748	747	751	756	760
22	762	763	762	763	763	762	765	763	756	752	749	750	757	759	765
23	767	765	763	761	762	762	760	759	756	750	750	754	757	759	763
24*	767	769	769	769	768	766	766	761	752	745	745	751	757	756	759
25	766	768	769	767	766	763	763	757	754	752	752	756	757	763	760
26	772	770	770	774	768	769	769	765	761	761	764	764	767	766	765
27	762	766	766	768	768	766	766	763	758	752	749	752	752	756	756
28	765	772	765	772	769	762	765	761	754	748	751	751	749	761	765
29	768	770	772	773	784	766	768	767	760	756	754	757	761	762	767
30	778	774	778	779	778	776	774	773	768	765	764	763	769	762	762
Mean.....	764	765	766	766	767	766	765	762	757	754	753	755	757	758	760
Mean*....	763	764	764	765	765	764	763	759	754	753	753	754	756	757	759

DECEMBER, 1910.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

1	771	767	771	775	775	775	774	770	765	760	759	761	761	760	766
2	763	771	771	768	773	769	774	769	767	763	754	754	763	750	763
3	768	768	769	768	769	770	773	768	765	762	759	767	762	760	760
4	762	761	762	767	767	768	768	766	761	756	756	760	756	760	756
5	764	763	766	766	766	767	766	763	760	755	755	755	755	755	756
6	764	762	761	759	767	764	765	759	758	753	753	754	754	749	750
7	762	760	764	764	763	763	765	763	755	749	752	748	745	746	747
8*	764	765	763	762	761	761	763	763	757	757	761	759	758	761	760
9*	764	764	764	763	763	763	764	762	758	753	752	752	754	758	761
10*	765	765	765	764	762	762	762	757	753	754	760	762	767	763	763
11*	765	767	766	765	763	762	762	759	754	753	752	752	758	762	768
12*	766	767	767	768	765	763	761	760	755	751	750	751	757	761	764
13	764	763	764	767	764	765	762	756	752	750	745	745	742	751	761
14	766	767	767	771	771	772	770	767	762	759	752	755	754	759	766
15	763	764	770	769	769	765	766	759	748	736	747	752	757	759	759
16*	769	769	770	773	775	774	772	766	759	759	759	758	759	760	764
17*	770	769	770	772	773	775	772	766	758	759	758	758	760	760	760
18	766	766	766	769	770	770	773	768	763	752	747	747	747	748	753
19	766	765	765	765	766	766	775	765	759	752	744	742	748	752	753
20	763	763	766	766	763	767	767	763	760	758	752	749	753	762	765
21	769	768	768	770	768	767	768	763	758	756	752	742	741	742	751
22	767	766	765	772	768	765	767	767	762	761	757	758	762	762	759
23	769	768	763	761	765	766	767	767	762	761	762	761	757	761	763
24*	768	768	767	766	766	765	765	764	758	755	750	750	756	758	756
25	771	772	773	771	766	767	767	766	758	756	753	757	759	762	762
26	766	769	770	770	770	767	765	761	758	751	745	749	756	757	763
27*	762	764	767	767	765	764	762	759	748	740	739	747	748	750	755
28	756	761	762	763	756	761	760	755	747	738	743	744	733	754	751
29	761	766	766	768	767	765	770	756	749	743	749	749	753	760	758
30	760	766	767	770	770	767	767	766	760	759	758	757	760	758	759
31*	765	766	767	768	766	768	769	765	758	750	753	760	762	764	762
Mean.....	765	766	766	767	767	766	765	762	758	754	753	753	755	757	759
Mean*....	766	766	767	767	767	766	765	756	753	754	754	755	758	760	761

\*The mean hourly values given on the bottom line are derived from the "quiet days" indicated by asterisks.

## HOURLY VALUES OF VERTICAL INTENSITY.

91

NOVEMBER, 1910.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

16 <sup>h</sup>	17 <sup>h</sup>	18 <sup>h</sup>	19 <sup>h</sup>	20 <sup>h</sup>	21 <sup>h</sup>	22 <sup>h</sup>	23 <sup>h</sup>	24 <sup>h</sup>	Mean	Maximum	Minimum	Range	Day	
763	764	766	766	764	765	764	760	764	762	3 35	770	11 30	752	18
767	771	770	770	767	766	764	765	765	765	5 00	775	11 49	755	20
763	766	765	765	765	765	766	765	765	764	5 00	770	11 00	758	12
762	764	760	763	764	765	764	767	764	761	22 40	769	11 00	752	17
762	761	762	763	758	764	767	769	768	761	22 33	770	13 44	753	17
763	763	763	763	763	763	763	764	764	764	2 30	769	14 00	758	11
763	760	763	763	760	763	762	762	766	762	8 00	767	13 00	758	9
759	752	757	757	760	757	759	763	762	759	0 23	767	11 12	746	21
751	755	755	755	758	762	762	759	758	757	20 46	766	15 00	749	17
759	757	762	759	758	756	758	764	766	761	1 00	767	9 46	755	12
762	763	761	757	758	756	754	756	757	758	0 00	766	10 36	750	16
763	763	762	758	756	756	756	758	760	760	14 00	767	11 21	754	13
762	763	763	762	758	758	757	758	760	758	4 00	763	10 00	748	15
755	757	760	757	756	755	754	756	759	755	5 00	764	10 00	743	21
760	762	762	762	761	759	759	758	758	760	3 48	768	10 50	750	18
767	770	765	757	767	766	762	764	755	762	5 28	774	10 00	751	23
764	763	770	773	769	778	763	766	766	765	5 22	779	10 42	750	29
765	760	778	772	772	771	770	766	766	766	5 42	779	10 46	730	49
764	766	768	767	766	766	766	766	765	764	7 14	770	13 27	746	24
764	766	769	768	765	768	773	771	768	764	21 50	774	12 22	755	19
764	762	764	761	763	765	765	765	764	762	3 00	771	12 00	747	21
767	764	760	760	763	764	765	767	765	761	16 00	767	11 00	749	18
759	755	757	756	760	765	765	764	767	760	0 11	769	10 00	750	19
758	756	757	756	757	757	759	762	763	759	0 28	771	11 00	745	26
760	766	762	764	759	759	768	770	772	762	24 00	772	10 25	750	22
765	766	763	764	762	761	761	762	763	765	4 00	774	8 44	759	15
763	764	763	764	762	761	761	766	766	761	3 51	769	11 00	749	20
764	769	768	769	769	768	767	767	767	763	4 42	772	10 00	748	24
765	769	767	774	779	779	776	777	778	769	4 56	784	11 00	754	30
774	778	773	771	771	766	764	771	763	771	4 00	779	14 46	757	22
763	763	764	763	763	763	763	764	764	762					30
761	762	762	761	760	760	760	761	762	760					17

DECEMBER, 1910.

33500 $\gamma$  PLUS TABULAR QUANTITIES.

771	768	770	770	764	767	769	767	764	768	4 49	777	13 18	758	19
768	771	772	771	767	769	772	771	769	767	7 13	775	14 00	750	25
765	763	759	769	774	770	769	765	765	766	7 56	774	11 00	759	15
750	760	763	766	766	767	768	767	762	762	6 03	768	16 00	750	18
758	760	761	761	757	758	765	761	761	761	21 50	769	20 38	754	15
753	(755)	756	755	752	763	767	766	770	759	24 00	770	13 53	748	22
753	755	756	759	761	762	764	765	765	758	0 00	770	13 24	741	29
758	755	753	762	761	761	763	764	764	761	1 26	768	18 00	753	15
761	762	759	759	760	762	764	764	766	760	24 00	766	10 20	749	17
763	763	761	758	760	762	763	763	764	762	13 00	767	9 00	753	14
770	769	764	764	763	763	763	764	766	762	16 00	770	11 39	751	19
765	763	761	760	758	758	758	762	760	760	4 00	768	11 00	750	18
767	763	754	760	757	762	769	765	764	759	22 12	770	12 24	739	31
769	767	766	766	762	760	760	760	760	764	5 42	772	11 00	752	20
763	765	768	764	766	766	767	768	768	762	2 42	784	10 20	732	52
766	769	770	771	771	770	769	770	768	767	5 12	775	12 26	754	21
762	764	768	771	771	770	770	771	769	767	6 32	775	12 00	758	17
754	761	766	766	767	769	767	768	766	762	6 47	774	12 00	742	32
757	757	759	763	763	764	770	775	768	761	23 00	775	11 26	741	34
763	760	762	766	766	767	769	768	768	762	7 13	769	12 08	749	20
757	757	761	764	764	763	768	769	769	761	4 24	771	12 39	740	31
760	761	763	765	766	769	767	766	766	764	4 27	773	9 17	756	17
764	763	763	763	764	768	767	768	768	764	1 13	773	12 53	756	17
762	766	767	767	766	763	766	766	769	763	23 39	771	11 38	749	22
763	761	765	766	765	764	764	765	767	764	3 12	778	10 50	752	25
763	(762)	(761)	(760)	(759)	(758)	(758)	(758)	(761)	(761)	2 14	771	11 00	745	26
756	759	760	757	756	757	756	757	761	756	3 10	768	10 40	737	31
760	761	756	764	766	760	759	766	756	756	2 16	770	13 13	732	38
756	758	766	766	764	763	763	764	772	760	24 00	772	9 44	739	33
763	766	764	767	767	767	765	766	765	764	4 23	772	13 27	757	15
759	764	768	769	768	767	767	768	767	764	4 38	773	10 00	750	23
761	762	763	764	764	763	764	764	766	762					31
762	763	763	764	764	763	764	764	766	762					20

## EARTHQUAKES.

A Bosch-Omori seismograph comprising two horizontal pendulums, one recording north-south motion (N) and the other recording east-west motion (E), has been in operation since September, 1903. In the following register of earthquakes the times are Greenwich mean time, counted from midnight.

Magnification..... 10  
Steady mass..... 10-12 kg.

## Period of pendulums.

N.			E.		
1909.		s.	1909.		s.
January and February.....		25	January to February.....		24
March to October.....		21	March to April.....		33
November to December.....		22	May to June.....		29
1910.			July to September.....		25
January to December.....		22	October to December.....		22
			1910.		
			January to December.....		21

## Register of earthquakes.

No.	Date	Com- ponent	First P. T. begin	Second P. T. begin	Large waves begin	Maximum	End of principal portion	End	Maximum amplitude
192	Jan. 12	N	h m s	h m s	h m s	h m s	h m	h m	mm
193	Jan. 23	N	3 15 43	.....	.....	3 41 36	.....	4 27	0.2
193	23	E	3 17 24	.....	.....	3 41 24	.....	4 26	0.4
194	Feb. 1	N	8 42 32	.....	8 42 52	8 43 07	.....	8 46	0.4
194	1	E	8 42 32	.....	8 42 52	8 43 07	.....	8 46	0.3
195	17	N	6 50 48	.....	6 50 58	6 50 58	6 52	6 53	1.1
195	17	E	6 50 48	.....	6 50 59	6 50 59	6 52	6 54	1.6
196	22	N	9 40 34	.....	.....	9 56 08	.....	10 14	0.4
196	22	E	9 40 32	.....	.....	9 45 20	.....	10 02	0.4
197	26	N	16 52 36	.....	16 57 58	17 01 28	17 12	17 16	1.5
197	26	E	16 52 16	.....	16 57 34	17 00 48	17 10	17 23	1.1
198	Mar. 8	N	4 56 24	.....	4 56 52	4 57 13	4 58	5 01	0.3
198	8	E	4 56 20	.....	4 56 57	4 57 08	4 58	5 00	0.4
199	18	N	.....	.....	0 19 ..	0 35 ..	0 53	.....	0.1
199	18	E	.....	.....	0 19 ..	0 40 ..	0 58	.....	0.1
200	Apr. 10	N	5 54 08	.....	.....	6 24 38	.....	6 52	0.1
200	10	E	5 52 28	.....	.....	6 26 16	.....	7 09	0.2
201	10	E	19 09 54	19 19 26	19 27 02	19 30 30	.....	20 42	0.2
202	27	N	.....	.....	13 57 ..	14 08 ..	.....	14 51	0.2
202	27	E	.....	.....	13 54 ..	.....	.....	14 58	0.1
203	May 12	N	0 11 14	0 15 52	0 21 02	0 16 06	0 27	0 50	0.6
203	12	E	0 11 16	0 15 52	0 19 12	0 16 02	0.23	0 50	0.4
204	13	N	13 43 00	13 47 24	13 52 24	13 47 54	.....	14 06	0.4
204	13	E	13 43 01	13 47 24	.....	13 47 58	.....	14 09	0.2
205	17	N	8 09 53	8 15 31	8 18 47	8 19 01	8 32	9 20	4.6
205	17	E	8 10 47	8 15 27	8 18 31	8 19 01	8 38	9 57	7.5
206	23	N	5 36 20	.....	5 40 34	5 41 07	.....	5 59	0.3
206	23	E	5 36 18	.....	5 40 45	5 41 29	.....	5 58	0.1
207	June 3	N	19 02 46	.....	19 56 06	20 19 01	20 29	20 55	1.2
207	3	E	19 05 09	.....	19 57 10	20 05 27	20 15	20 55	0.8
208	8	N	5 54 48	6 01 11	6 08 37	6 13 37	6 20	7 13	2.2
208	8	E	5 55 35	6 01 23	6 08 51	6 05 28	6 19	7 08	4.3
209	July 7	N	21 56 41	22 04 04	.....	22 13 25	22 18	22 57	0.5
209	7	E	21 56 41	.....	.....	22 12 23	.....	22 56	0.5
210	30	N	10 58 28	11 03 44	11 07 28	11 12 14	11 39	12 06	1.4
210	30	E	10 58 34	11 04 04	11 08 14	11 14 42	11 43	12 06	1.9
211	31	N	19 30 42	.....	.....	19 35 50	.....	19 56	0.5
211	31	E	19 30 46	.....	.....	19 35 48	19 44	19 56	0.4
212	Aug. 16	N	7 04 19	7 08 19	7 13 27	7 17 33	7 20	7 26	0.4
212	16	E	7 04 19	7 08 41	7 15 33	7 16 10	7 19	7 26	0.7

## Register of earthquakes—Continued.

No.	Date	Com- ponent	First P. T. begin	Second P. T. begin	Large waves begin	Maximum	End of principal portion	End	Maximum amplitude
213	Oct. 31	N	h m s 10 35 29	h m s 10 38 31	h m s — — —	h m s 10 45 55	h m — —	h m 11 05	mm 0.3
213	31	E	10 35 47	— — —	— — —	10 40 59	— —	11 04	0.2
214	Nov. 18	N	20 40 26	— — —	— — —	— — —	— —	20 41	0.1
214	18	E	20 40 26	— — —	— — —	— — —	— —	20 41	—
215	18	N	20 55 26	— — —	20 55 41	20 55 45	20 56	20 58	0.6
215	18	E	20 55 26	— — —	20 55 45	20 55 53	20 56	20 58	0.6
	1910.								
216	Jan. 1	N	11 05 58	— — —	11 09 16	11 21 44	11 40	11 58	1.0
216	1	E	11 06 06	— — —	11 09 09	11 23 14	11 38	11 58	0.5
216a	22	N	— — —	— — —	9 01 42	9 06 26	9 32	—	0.1
217	23	N	18 51 25	18 53 03	18 53 53	18 55 25	19 04	19 20	1.1
217	23	E	18 51 32	— — —	18 53 24	18 58 17	19 02	19 10	0.5
218	Mar. 25	N	— — —	— — —	15 35 21	15 42 07	16 06	— —	0.1
218	25	E	— — —	— — —	15 37 00	15 41 53	16 02	— —	0.2
219	May 11	N	7 27 59	7 28 12	7 28 25	7 28 53	7 30	7 36	0.5
219	11	E	7 27 47	7 28 31	7 28 43	7 29 11	7 31	7 35	0.2
220	31	N	5 02 04	— — —	5 07 19	5 18 35	5 19	5 23	0.4
220	31	E	— — —	— — —	5 15 20	5 18 12	— —	5 23	0.1
221	June 14	N	19 46 40	— — —	19 47 30	19 48 58	19 52	19 57	0.2
221	14	E	19 46 20	— — —	— — —	19 48 20	19 49	— —	0.1
222	16	N	6 51 12	— — —	7 24 16	7 35 21	7 37	8 44	0.9
222	16	E	6 52 50	— — —	7 32 04	7 32 35	7 35	7 44	0.3
223	29	N	11 36 04	— — —	11 41 43	11 48 45	11 51	— —	0.2
224	July 10	N	15 11 35	— — —	15 16 22	15 20 04	15 22	15 32	0.2
224	10	E	15 17 16	— — —	15 21 17	15 23 43	15 26	15 31	0.1
225	Aug. 3	N	— — —	— — —	22 50 41	22 51 09	22 52	22 54	0.4
225	3	E	— — —	— — —	22 50 39	22 51 35	22 52	22 54	0.1
226	11	N	16 34 08	— — —	16 39 52	16 41 36	16 43	17 01	0.5
226	11	E	16 34 25	— — —	16 41 19	16 43 27	16 44	16 51	0.2
227	Sept. 10	N	1 56 30	— — —	1 56 50	1 57 01	1 58	2 02	0.6
227	10	E	1 56 31	— — —	1 57 00	1 57 21	1 58	2 02	0.2
228	24	N	— — —	— — —	3 44 16	3 50 48	3 54	4 04	0.3
229	Oct. 4	N	— — —	— — —	23 13 20	23 16 35	23 18	23 34	0.2
229	4	E	23 07 50	— — —	23 13 01	23 16 33	23 18	23 33	0.2
230	Nov. 9	N	6 23 15	— — —	6 36 45	6 46 20	— —	— —	0.2
230	9	E	6 22 15	— — —	6 36 27	— —	— —	— —	0.1
231	9	N	— — —	— — —	7 39 45	7 50 30	— —	8 45	—
231	9	E	— — —	— — —	7 38 10	— —	— —	8 15	—
232	Dec. 6	N	13 47 28	— — —	13 47 44	13 47 56	13 48	13 51	0.2
232	6	E	13 47 28	— — —	13 47 38	13 47 57	13 49	13 51	0.2
233	10	N	9 48 56	— — —	10 21 48	10 23 28	— —	11 42	0.1
233	10	E	9 48 35	— — —	10 20 00	10 30 00	— —	11 36	0.1
234	13	N	12 06 00	— — —	12 20 48	12 29 56	12 39	13 30	0.2
234	13	E	12 01 30	— — —	12 21 30	12 30 00	12 38	13 25	0.6
235	16	N	15 05 30	15 28 37	15 39 27	16 14 40	— —	17 00	0.2
235	16	E	15 06 27	15 28 42	15 45 47	16 11 00	— —	17 00	0.2
236	21	N	10 28 33	— — —	10 34 35	10 28 40	— —	10 50	0.2
236	21	E	10 28 28	— — —	10 35 35	10 28 47	— —	10 50	0.2
237	25	N	3 11 28	— — —	— — —	3 11 39	— —	3 13	0.2
237	25	E	3 11 00	— — —	— — —	3 11 45	— —	3 14	0.2

## REMARKS.

Nos. 192, 199, 202: Series of long waves of small amplitude.

No. 195: Local; felt at Vieques, accompanied by a rumbling sound.

Nos. 200, 207, 209, 211, 213: Phases not well marked.

No. 208: Possibly the principal portion began at 6: 04:45.

Nos. 214, 215: Probably local.

Nos. 227, 232, 237: Local.

Nos. 230, 231: The two earthquakes overlap and none of the phases are well defined. There is some indication of a beginning of No. 230 as early as 6:12, but it is very indistinct.

The pendulums were not in good adjustment during 1910, and it was difficult to determine the times of the different phases.

## MAGNETIC STORMS.

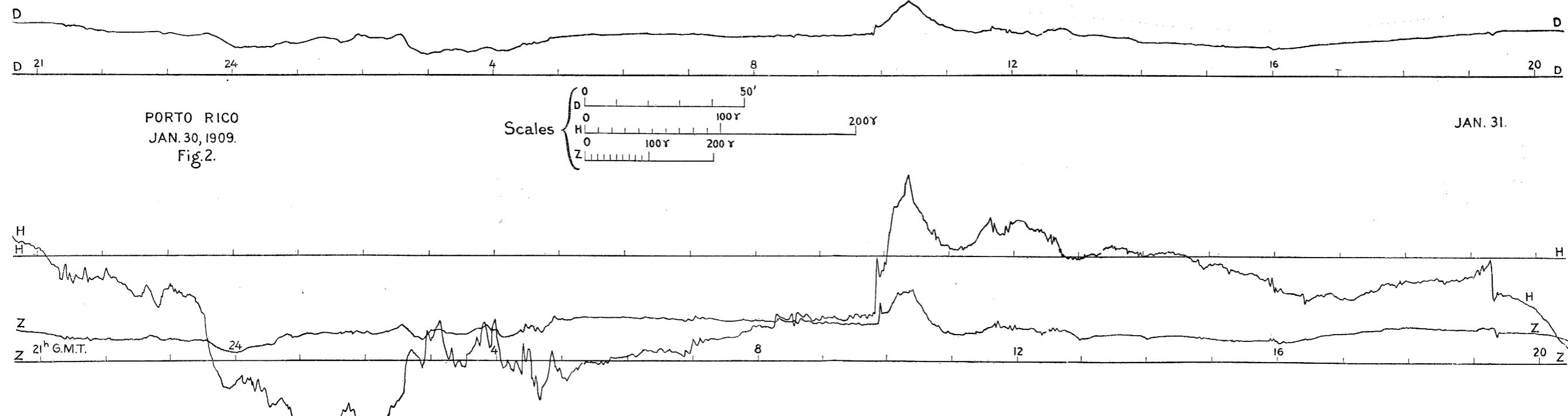
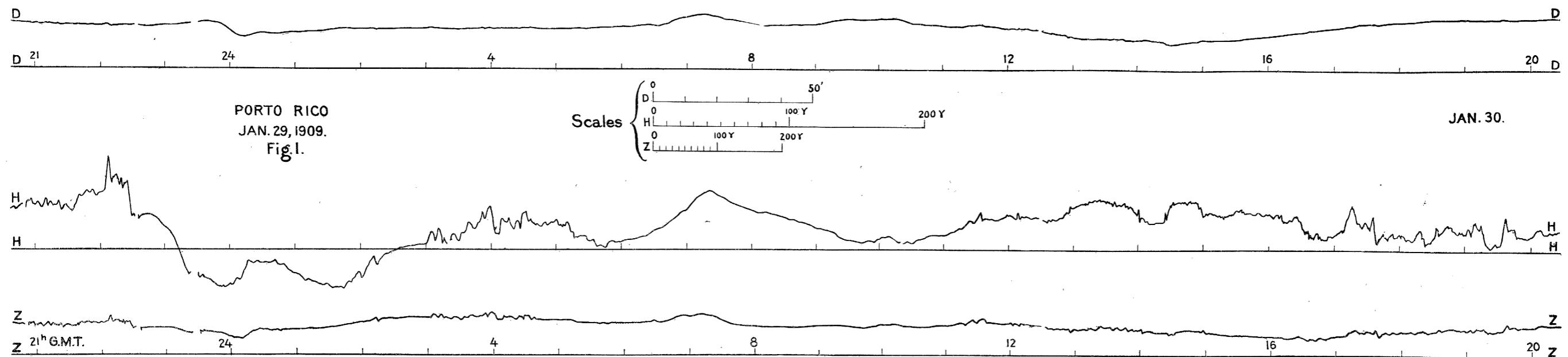
In the table below the magnitude of a storm is indicated by one of the figures 1, 2, 3, 4. When a storm began abruptly the time of beginning is given to the nearest minute.

On the succeeding pages will be found reproductions of the magnetograms showing the principal storms, reduced to three-fourths the original size. A storm selected for reproduction is indicated in the table by an asterisk after the date. An upward motion of the curves corresponds to increasing west declination, increasing  $H$  and increasing  $Z$ . For convenience in comparing with similar reproductions from other observatories, the time scale has been marked for Greenwich mean time.

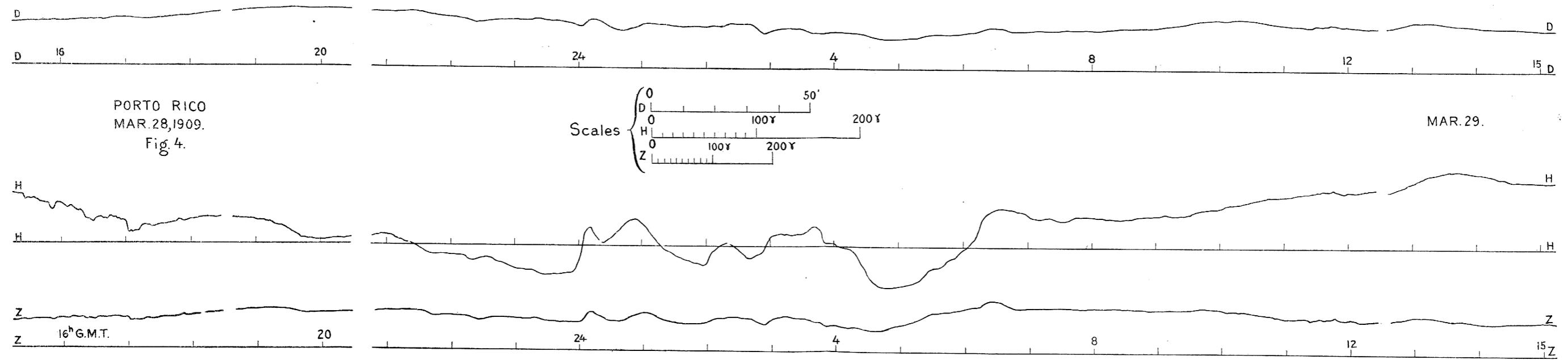
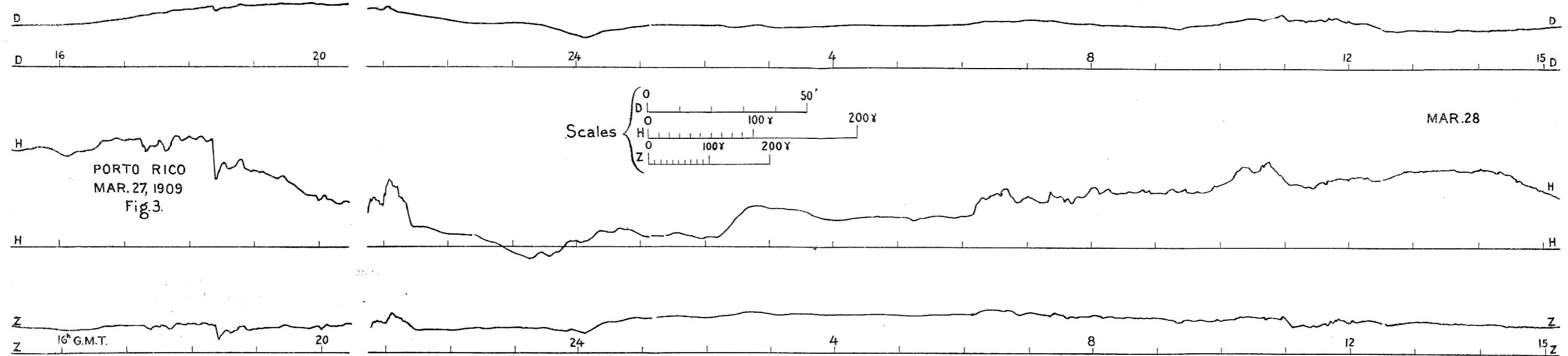
## Principal magnetic disturbances.

Date.	L. M. T. of beginning.	Duration in hours.	Relative magnitude.	Date.	L. M. T. of beginning.	Duration in hours.	Relative magnitude.
1909.				1910.			
Jan. 3	7	29	1	Jan. 17	6	19	1
28*	23	72	2	23	17	54	2
Feb. 1	21	41	1	Feb. 14	5	35	1
5	20 30	24	1	17	8	18	1
21	12	80	1	20	5 52	43	1
Mar. 5	7 05	22	1	Mar. 6	11	27	1
18	5 08	43	1	13	6 45	22	1
20	20	50	1	19	17	64	1
26*	7 59	72	2	26*	20	72	2
Apr. 9	16 49	25	1	30*	12	84	2
May 14*	0	52	3	Apr. 11	18	27	1
18*	0 43	38	2	17	17	36	1
June 21	1 08	48	1	22	18	55	1
27	22	78	1	26*	17	104	2
July 12	11	20	1	May 12	17	60	1
22	19	54	1	17	17	72	1
28	9	48	1	23	16	130	2
Aug. 1	20	52	1	June 8	3	41	1
7	1 23	20	1	19	14	58	2
8	20	18	1	July 4	15	86	1
28*	12	92	2	22	7	48	1
Sept. 2	18	52	1	Aug. 9	18	44	2
21	6 56	25	1	17	16	58	1
25*	4	24	4	21*	0	44	2
29*	23 36	26	2	27*	23	78	2
Oct. 1	20	24	1	Sept. 20	11	69	2
18*	1	56	2	24*	6	147	3
22*	19 36	24	2	Oct. 1	18	73	1
Nov. 26	17	22	1	5	14	32	2
29	19	61	1	11*	22	50	2
Dec. 13	4	50	1	19	2 51	46	1
				23	17	107	1
				Nov. 15	21	70	1
				29	3	50	1
				Dec. 14	21	28	1
				28	1	52	2

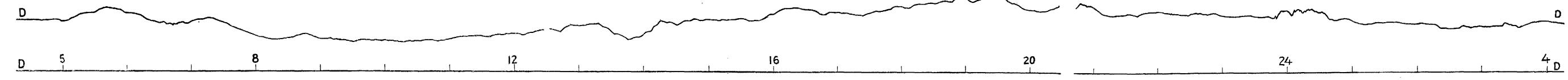




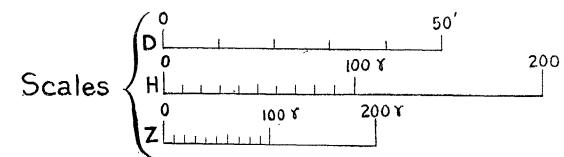




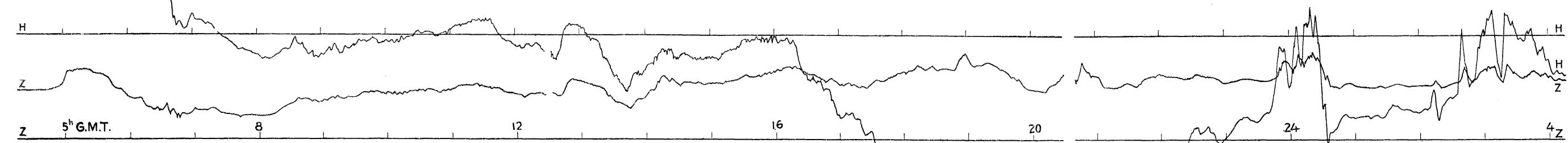




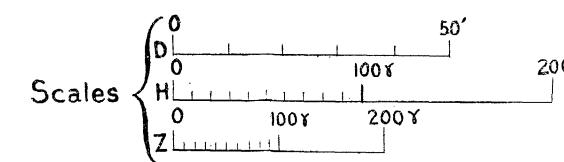
PORTO RICO  
MAY 14 1909.  
Fig. 5.



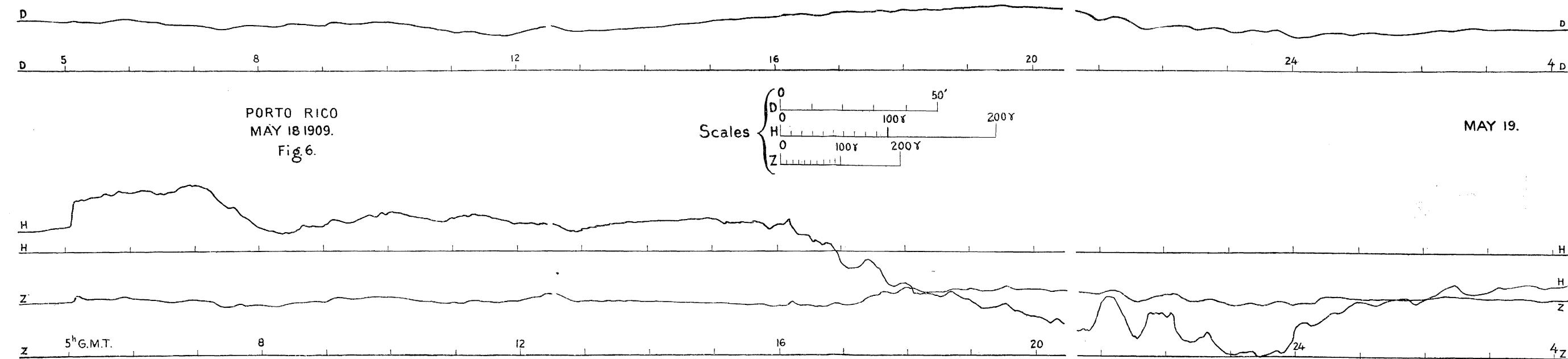
MAY 15.



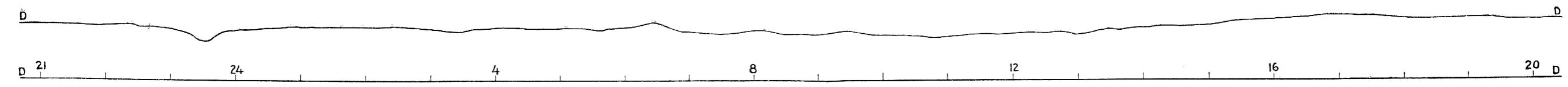
PORTO RICO  
MAY 18 1909.  
Fig. 6.



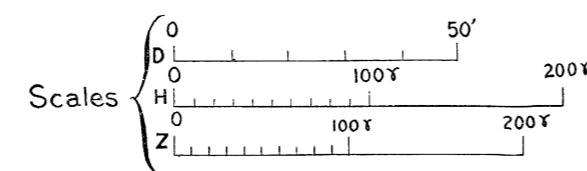
MAY 19.



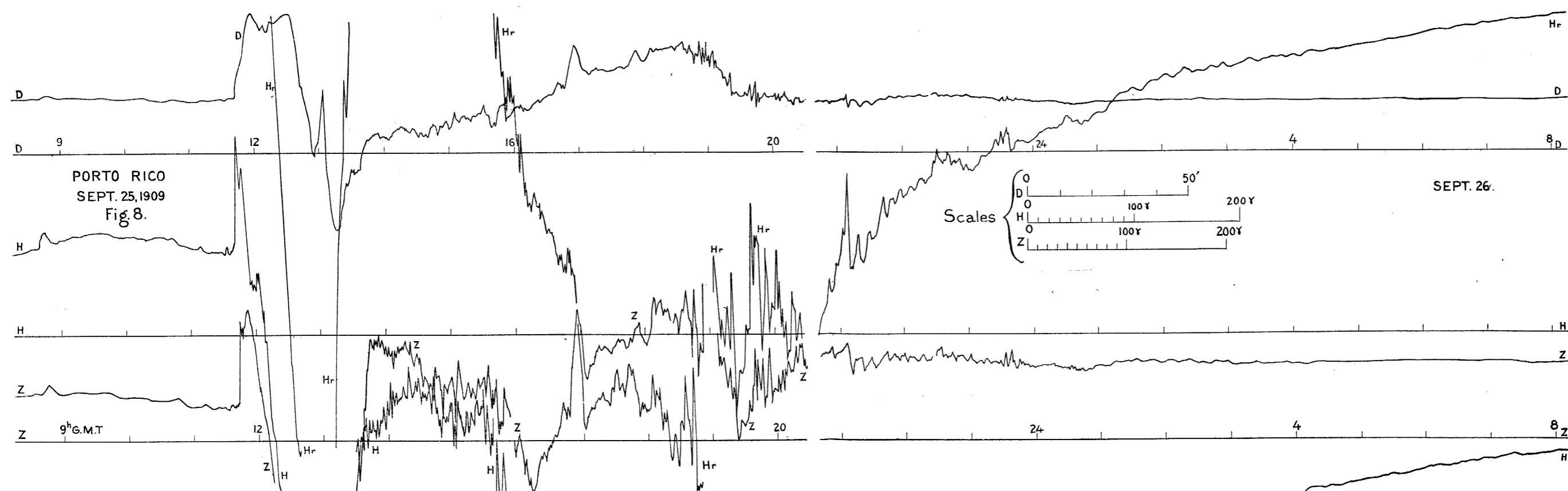
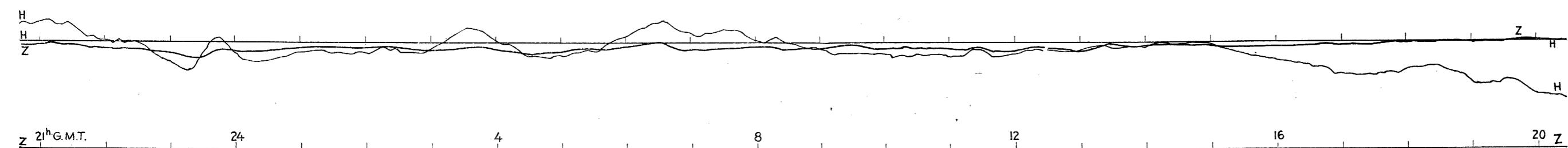




PORTO RICO  
AUG. 28, 1909  
Fig. 7

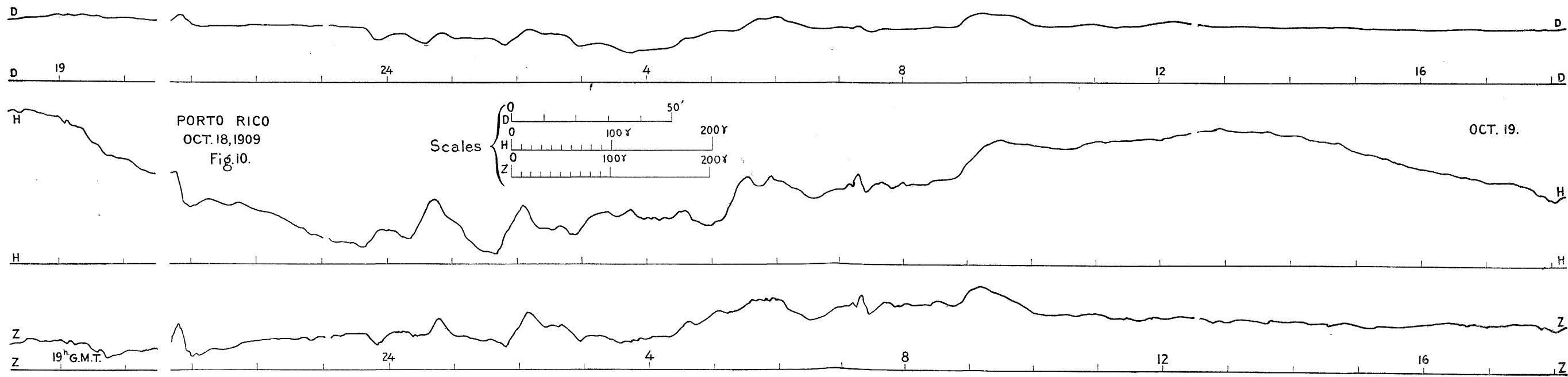
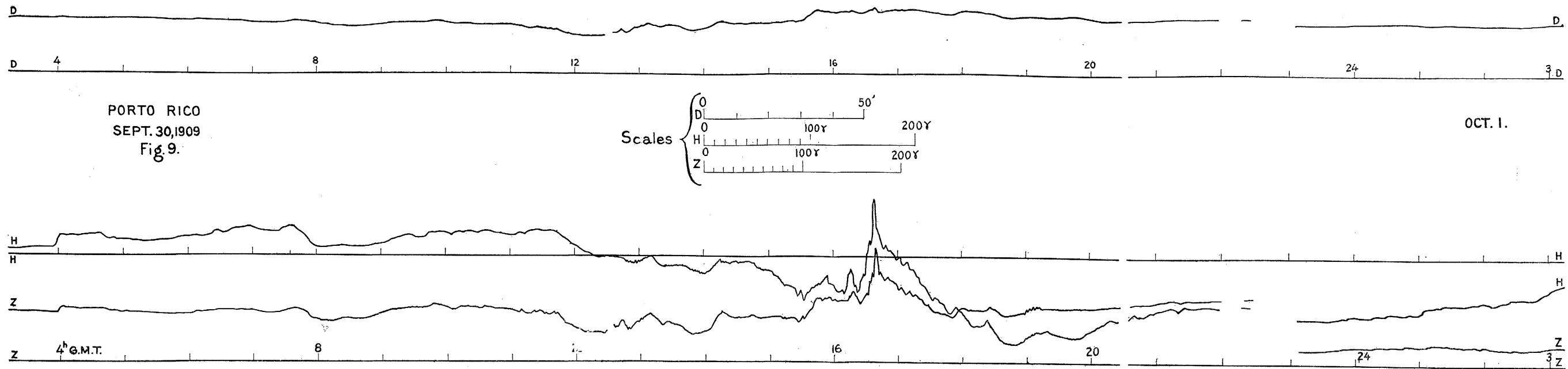


AUG. 29.

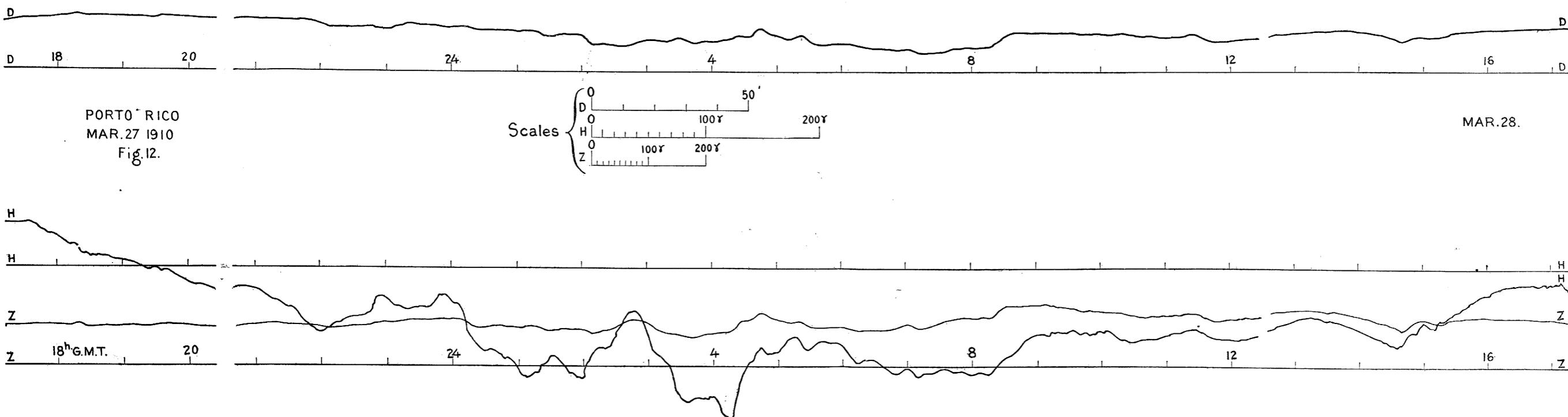
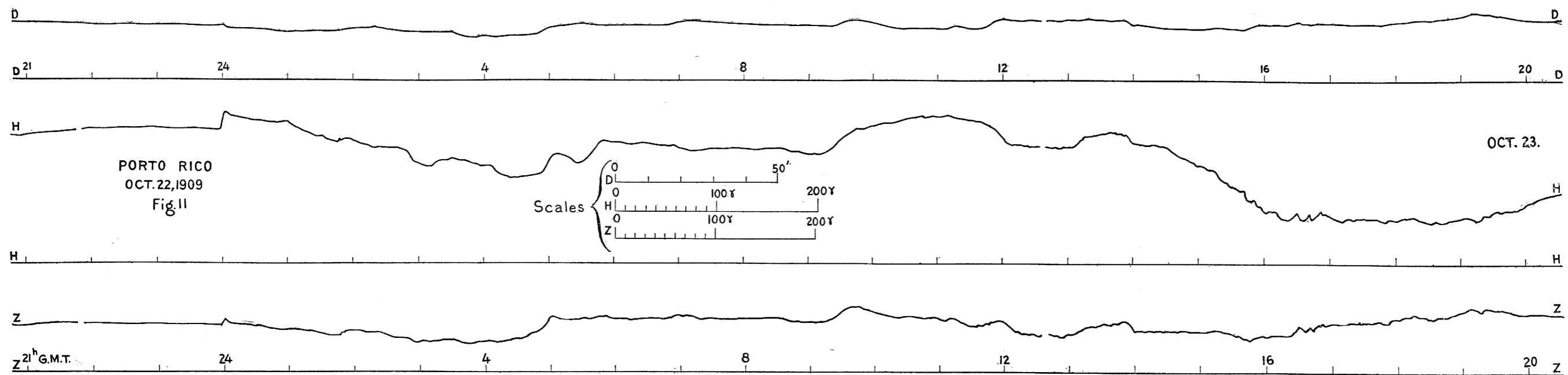


SEPT. 26.

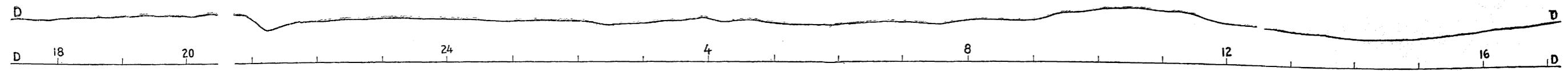




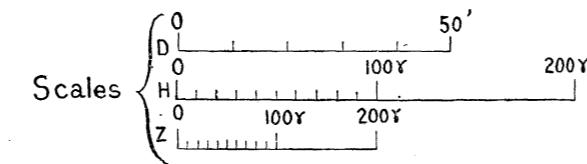




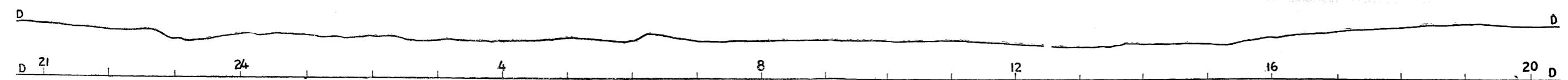
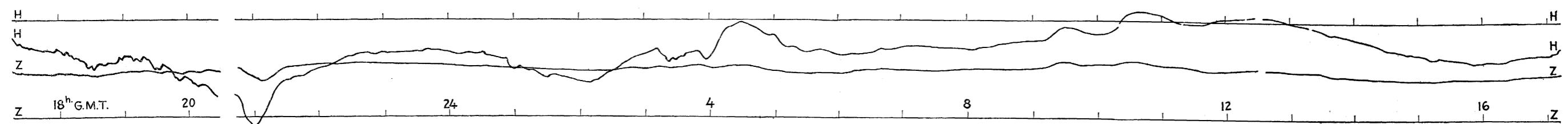




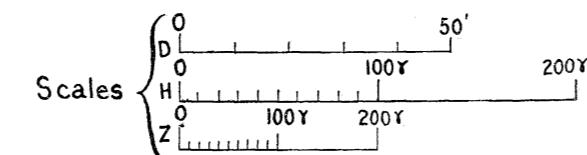
PORO RICO  
MAR. 28 1910  
Fig. 13.



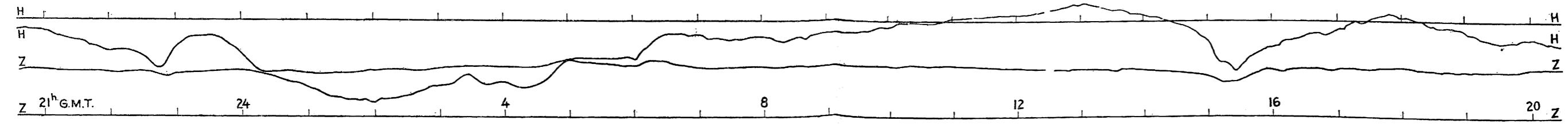
MAR. 29.



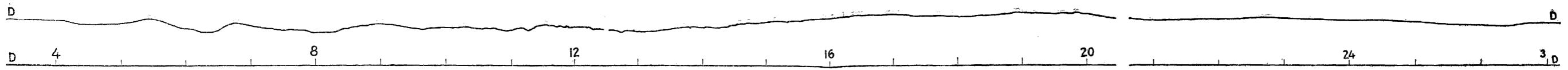
PORO RICO  
MAR. 30, 1910  
Fig. 14.



MAR. 31.

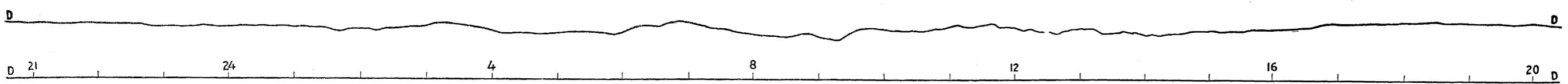
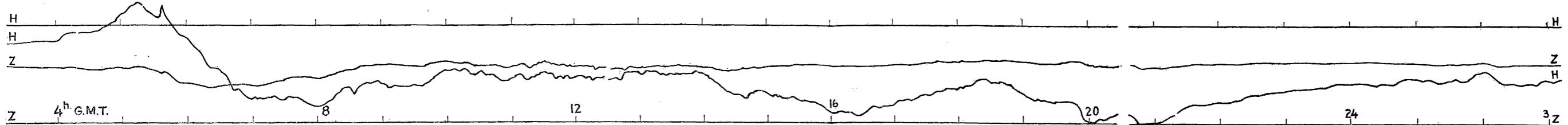
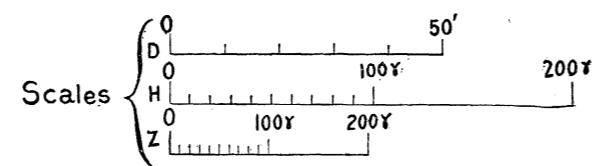






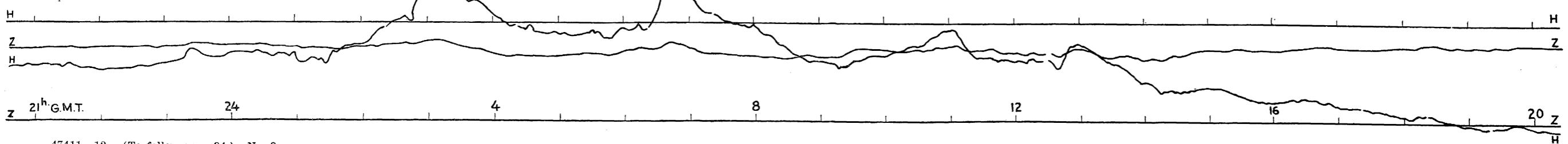
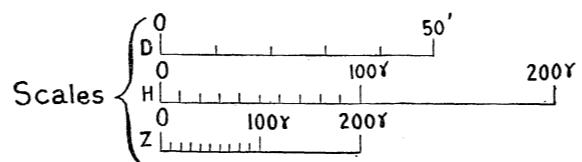
PORO RICO  
APR. 27, 1910  
Fig. 15.

APR. 28.

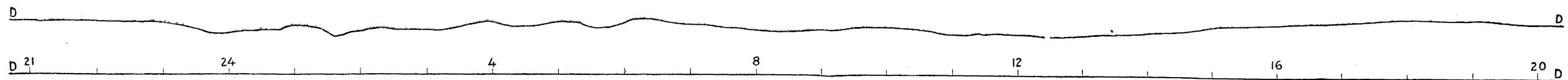


PORO RICO  
AUG. 21, 1910.  
Fig. 16.

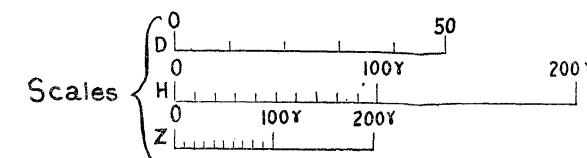
AUG. 22.



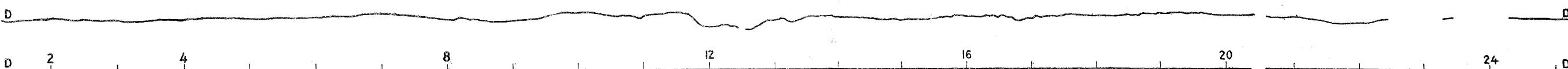
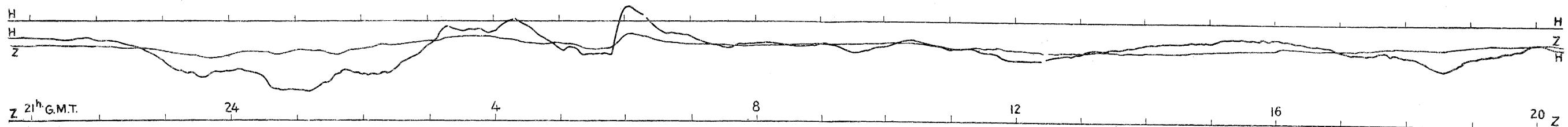




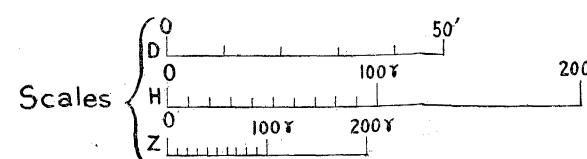
PORTO RICO  
AUG 28, 1910  
Fig. 17.



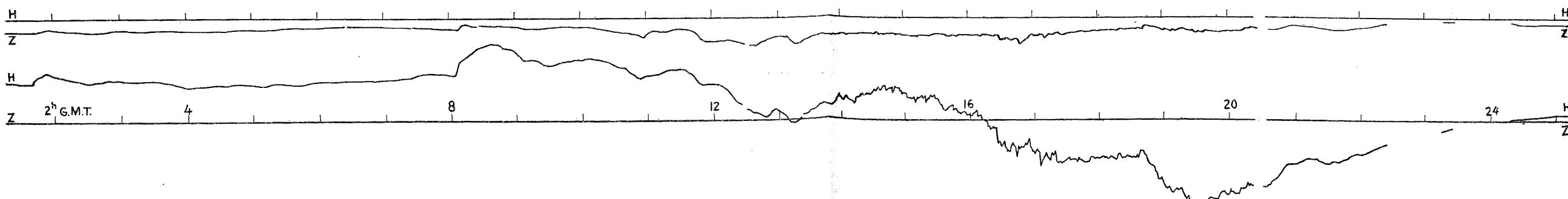
AUG. 29.



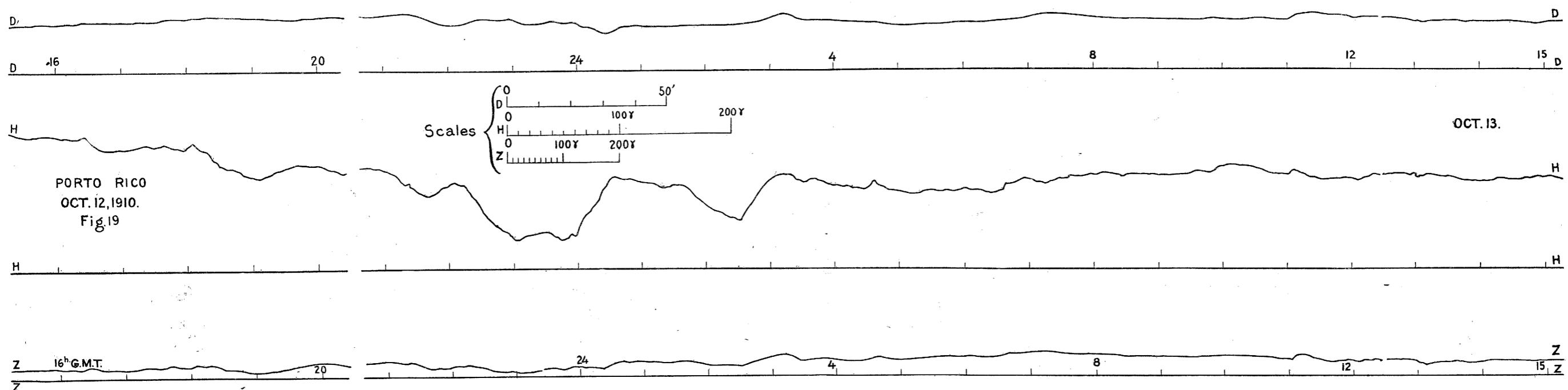
PORTO RICO  
SEPT. 29, 1910  
Fig. 18.



SEPT. 30







47411-12. (To follow page 94.) No. 10.







